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ON

OSTEO-ARTHRITIS:

PATHOLOGY, ÆTIOLOGY, AND PRINCIPLES OF SURGICAL TREATMENT.*

BY A. G. TIMBRELL FISHER, *M.C.*, F.R.C.S. ENG.,

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(*Concluded from p. 6.*)

ÆTIOLOGY AND PATHOLOGICAL DEDUCTIONS.

SPACE will not allow a detailed consideration of the difficult problem of the ætiology of osteo-arthritis and necessitates a summary of main conclusions, of which a more complete analysis will be given elsewhere. I venture to give the following definition: Osteo-arthritis does not constitute a disease sui generis, but rather the series of physiological or pathological changes that ensue in a joint when it is subjected to prolonged or oft-repeated injury, either mechanical or toxic, but of a moderate degree of intensity. The causes are therefore very varied, and there can be little doubt that the future will bring to light additional factors in its causation of which we are at present ignorant. Osteo-arthritic changes, for example, occur with greater frequency in certain disorders of the ductless glands such as acromegaly than in my opinion can be ascribed to mere coincidence. Whether in these cases the joint changes are due to the action of toxins formed from failure of the ductless gland to supply the necessary link in the chain of metabolic endogenous products, or whether in some way the resistance of the joint to bacterial toxins is lowered, it is impossible at present to state.

The relation of osteo-arthritis to the group of auto-intoxications due to defects in the excretory apparatus or to the accumulation in the body of products of normal metabolism is still undecided, but two groups emerge concerning the ætiology of which we have a little more evidence. The following preliminary classification is therefore adopted: Group 1, traumatic osteo-arthritis; Group 2, osteo-arthritis due to bacterial toxins—(*a*) formed locally, and (*b*) brought from some more distant focus.

GROUP 1.—*Traumatic or Localised Osteo-arthritis.*

Examples of this large group occur very frequently, and have considerable medico-legal importance. It is often difficult to be certain whether we are dealing with a case of true traumatic osteo-arthritis, or whether the injury has lowered the resistance of the joint structures and has caused the latter to become the site of action of bacterial toxins. Articular cartilage is devoid of vessels, yet it exhibits the cellular response which constitutes one of the principal phenomena of inflammation, and the latter may be brought about by mechanical injury quite apart from the action of toxins. True traumatic osteo-arthritis is usually distinguished by the fact that the pathological changes are in most cases localised to that part of the joint which is subjected to the greatest degree of mechanical trauma. Moreover, an important ætiological factor lies in the fact that the traumata are oft-repeated and spread over a long period of time. Clinical and experimental observations cause me to doubt whether an isolated contusion of a joint is in itself sufficient to cause true traumatic osteo-arthritis.

Classification of Traumatic Osteo-arthritis.—Among the causes may be enumerated: (1) the presence within the joint of a loose body or other localised source of irritation; (2) fractures involving joint surfaces or of the adjacent bone that bring about altered alignment of these (Fig. 7); (3) altered articular alignment from disease of the limb bones with consequent deformity; (4) localised increase of articular stress of an occupational origin (Arbuthnot Lane); (5) osteo-arthritis in false joints; (6) abnormal joint mobility from rupture or stretching of capsular or intra-articular ligaments; (7) the repeated intra-articular hæmorrhages of hæmophilia. Examples of these varieties are of frequent occurrence, but it must be emphasised that occurrence of the traumatic form is often evidence of improper or neglected treatment.

FIG. 7.

Early osteo-arthritic changes in association with fracture of patella.

[Examples of the traumatic variety were then cited.]

The following experiment is of interest in this connexion:—

EXPERIMENT 8.—The right knee-joint of a rabbit was opened by a vertical incision on the inner side, and a small pellet of sterile wool was inserted into the supra-patellar pouch. In addition, three small sterile leaden shot were introduced. The wound was sutured in two layers and a collodion dressing applied. The after-history was quite uneventful; the animal used the limb normally and there was no limp. Seventeen weeks later on opening the joint the pellet of wool, which had remained in the supra-patellar pouch, was surrounded by a smooth and glistening sheath of connective tissue. The leaden shot were lying perfectly free and unaltered in the lower and front part of the joint. (Fig. 8.) Careful examination failed to reveal any fibrillation or other abnormal changes in the articular cartilage.

FIG. 8.

Knee-joint of rabbit showing pellet of wool within the supra-patellar pouch, and two small shot in front of crucial ligaments. (Expt. 8.)

* Embodying the Hunterian Lecture delivered at the Royal College of Surgeons of England, and constituting an abstract of a preliminary report to the Medical Research Council, who have generously defrayed the expenses of the research. Published in greater detail in the British Journal of Surgery.

When a traumatic loose body—i.e., a detached portion of the articular surface—is quite free, it occasionally gives rise to generalised osteo-arthritic changes. These are preceded by oft-repeated attacks of synovitis, and the articular cartilage participates in the inflammatory reaction caused by the loose body becoming caught between the articular surfaces. In some cases these osteo-arthritic changes are associated with the formation of synovial chondromata, and I have observed the association in the same joint of a traumatic loose body and of detached synovial chondromata.

GROUP II.—*Osteo-arthritis due to Bacterial Toxins.*

1. Osteo-arthritis occurring in the more chronic forms of the so-called specific infections such as typhoid fever, pneumonia, dysentery, gonorrhœa, syphilis, &c. My personal observations confirm those made by most other workers that in these chronic joint affections it is rarely possible to isolate organisms from the joint fluid. However, it is illogical to argue from this that the joint affections are unconnected with the organism which has given rise to an existing or recent infection. Alternative explanations of this absence of organisms from the joint fluid are:—

(*a*) The specialised synovial cells disposed in many layers, particularly near the articular margins, form a barrier effectually shutting off organisms from the joint cavity, save in the more acute cases; but the toxins elaborated by these organisms gain access to the synovial fluid.

(*b*) The bacterial toxins are brought to the joint from some distant focus. This frequently appears to be the most likely hypothesis, for reasons to be adduced later. As an example of the subdivision under consideration may be cited the occurrence of osteo-arthritis after acute rheumatism.

In this connexion it is of interest to note that Poynton and Paine and Beattie have produced osteo-arthritic lesions experimentally with organisms isolated from cases of rheumatism.

2. The so-called "idiopathic," "spontaneous," or "senile" osteo-arthritis. One school ascribes those common forms of osteo-arthritis occurring in persons who have passed the meridian of life to so-called "senile degeneration" (vide the term "degenerative arthritis"). Hoffa and Wollenberg have suggested that the changes might be due to deficient nutrition of the joint structures brought about by endarteritis obliterans of the nutrient vessels. More recently Strangeways, of Cambridge, has advanced the theory that the changes are due to alteration in the nutritive value of the synovial fluid, brought about by arterio-sclerosis of the vessels of the joint capsule.

The following deductions are drawn, concerning the ætiology of Group II. (2) (the so-called "idiopathic" or "senile" osteo-arthritis), from the pathological and clinical data, and are given together with an account of some experimental observations.

A. *Deductions from the Pathological Data.*

(*a*) *From the Morbid Histology of Affected Joints and Composition of the Synovial Fluid.*

1. My analyses of synovial fluid from osteo-arthritic joints show it to be richer in protein content than normal synovial fluid. Moreover, according to the theory of alteration of nutrition by the synovial fluid, the changes should take place in those parts of the cartilage most remote from its access—whereas the reverse is the case.

2. Although the ground substance of the articular cartilage, particularly of the central area, certainly degenerates, the cartilage cells usually show no sign of degeneration and may actually proliferate. This proliferation is particularly well-marked in the lateral parts of the articular cartilage, where chondro-osteophytes often of large size may be formed. This proliferation is difficult to reconcile with the theories of senile degeneration or of diminished nutrition.

3. The changes in the bone are at first hyperplastic, and the newly formed bone only becomes atrophic later.

4. The changes in the synovial membrane are at first hyperplastic rather than degenerative. The marked increase of synovial villi with formation in some cases of synovial chondromata is extremely difficult to reconcile with any form of senile degeneration.

5. The synovial membrane in all the earlier cases examined was found to be highly vascular: the larger vessels and capillaries being patent and presenting no sign of endarteritis obliterans. There is evidence, however, that in the later stages some endarteritis may be present, and the synovial membrane admittedly becomes atrophic.

6. The joint changes bear no constant relation to age. Similar pathological appearances may occur in middle-aged or young individuals in whom these "senile" changes may be very marked. Furthermore, in very aged individuals the lesions of osteo-arthritis may be absent.

7. The conclusion to be drawn from the morbid histology strongly favours the view that the joint structures are acted upon by toxic substances, which, in the poorly nourished central area of the articular cartilage, bring about degeneration of the ground substance, and elsewhere proliferation. The latter process is followed later by degeneration from the continued action of the toxin. The anatomical position of the lesions strongly suggests that the circulus articuli vasculosus is the principal vascular route through which the toxins reach the joint.

8. The usual absence of small-cell infiltration in the various joint structures and of micro-organisms in the synovial fluid suggests that the toxic substances are not formed by bacteria in situ, but are brought from some other part of the body.

(*b*) *Deductions Concerning the Possible Origin of the Toxic Substances from the General Pathological Appearances Post-mortem.*—It was thought that a number of investigations of the general pathological appearances might throw some light upon the source of the toxic substances. In this part of the research it is my pleasant duty to acknowledge the help and facilities accorded me by Sir Frederick Andrewes and Dr. Spilsbury. In two of three cases of Group III. (advanced osteo-arthritis) potential infective foci were present, and in all three there were various coexistent lesions probably of infective or toxic origin. Out of six cases of Group II. (moderate degree of osteo-arthritis), in four there were distinct foci of potential infection and in two the evidence points to intestinal toxæmia. In all six cases well-marked coexistent lesions of infective or toxic nature were present. Out of 17 cases of Group I. (slight osteo-arthritis) potential foci of infection were present in 15.

The evidence derived from the general post-mortem pathological appearances, in cases of osteo-arthritis, thus lends support to the theory that the disease may be caused by the action amongst others of toxic substances elaborated in chronic infective foci.

B. *Deductions from Clinical Data.*

Space compels me to summarise my conclusions from a critical study and analysis of a large number of hospital and private patients. In at least 95 per cent. of cases of osteo-arthritis I have been able to satisfy myself that a definite focus or foci of toxic absorption were present. I am unable to find records of a single case where treatment directed towards the focus or foci in question has not produced amelioration of the joint condition, and in many cases cure has resulted. A careful analysis of my personal cases and of cases published by other investigators—including Sir Arbuthnot Lane and Sir Kenneth Goadby—convinces me that the arthritis on the clinical evidence must be considered as the result of the infective condition, and that this coexistence and the effects of treatment cannot be dismissed by any rational person as a mere fortuitous coincidence. The possible foci of toxic absorption are very numerous; and my experiments upon animals led me to believe that the joint resistance is gradually broken down. This prolonged resistance of the joint probably

accounts for the fact that osteo-arthritis is more common in those past the meridian of life.

C. *Deductions from Experimental Observations.*

If we are to produce osteo-arthritis experimentally by bacterial toxins, particularly if the bacteria be obtained from an obvious focus of infection in a patient suffering from osteo-arthritis, this evidence must lend strong support to the theory of causation of the latter by bacterial toxins.

The following typical experiment of mine may be quoted:—

EXPERIMENT 16.—The *Streptococcus salivarius* was isolated from the teeth sockets of a male patient aged 65, with marked pyorrhœa alveolaris, and who also had osteo-arthritis of the left hip. A broth culture of the organism was prepared; 1 c.cm. of the culture was injected into the right and 0·5 c.cm. into the left knee of a rabbit. The left knee was subjected to percussion for two minutes with a mallet. Six weeks later the animal was killed. The left knee (which, it is to be noted, had received only half the amount of organisms received by the right, but which had been subjected to percussion) was filled with thick creamy pus—the synovial membrane was converted into granulation tissue, and some absorption of the articular cartilage had occurred. No true osteophytes were present. The right knee-joint presented unequivocal signs of osteo-arthritis. This experiment demonstrates also the important part which trauma may play in lowering the resistance of the joint to infection, and affords some explanation of the frequency with which the onset of osteo-arthritis is preceded by trauma.

As is well known, the joint fluid in osteo-arthritis is in a very large proportion of cases sterile. I have, however, found that this sterile fluid when injected into the joints of rabbits induces degenerative changes in the articular cartilage; thus demonstrating that the fluid from osteo-arthritic joints *contains toxic substances.*

EXPERIMENT 14.—Two c.cm. of sterile synovial fluid from the knee-joint of a case of early osteo-arthritis with effusion were injected into the right knee-joint of a rabbit and 1·5 c.cm. into the left. Six days later the temperature was noted to be raised over both joints and some limitation of flexion was present from muscular spasms. This, however, soon disappeared and the joints appeared normal. Four months later, however, the joints on examination showed well-marked superficial erosion of the articular cartilage at the junction of the trochlear and condylar portions of the articular surface.

[Some further experimental work was then quoted by the lecturer.]

Osteo-arthritis Occurring in Diseases of the Central Nervous System such as Tabes and Syringomyelia.—As is well known, in these diseases the joints may be the seat of pathological changes, which, save that all the processes tend eventually to become exaggerated, are similar in all respects to those occurring in osteo-arthritis. It seems highly probable that the osteo-arthritic changes are not due directly to the disease of the central nervous system, but that the latter in some way leads to the increased rapidity and extent of these changes.

Osteo-arthritis Occurring in Chronic Gout.—Microscopical examination of the articular cartilage in gout does not lend support to the view that the osteo-arthritic changes are due to the irritation induced by the presence of crystals of sodium biurate, for there is very little proliferation of the cartilage cells in their vicinity. The actual ætiology of gout is still unsettled.

[Prof. Fisher then dealt with the subjects of symptomatology and diagnosis, including differential diagnosis from rheumatoid arthritis. The X ray appearances of the joints were also briefly described. (Fig. 9)]

TREATMENT.†

In the traumatic group prevention is naturally better than cure, and in many cases the occurrence of this variety is due to faulty treatment. However, as this form is usually localised, appropriate treatment where practicable of the deformity or other source of irritation may stop the progress of the disease. I would adduce the following general principles of treatment for the infective or toxic group, including the "senile" variety, and which are particularly applicable to the earlier and active stages of the disease.

1. Eradication, as far as possible, of any focus or foci of toxic absorption, including measures that prevent the formation or assist the elimination of systemic toxins.

2. The cessation, particularly in uni-articular cases and in the lower extremity, of pressure between diseased articular surfaces.

3. Local treatment to the joints themselves to stimulate defensive reaction of articular elements, and to prevent ankylosis or obstruction of movement by osteophytes.

FIG. 9.

Synovial chondromata.

4. Dietetic and medicinal treatment.

I desire to emphasise strongly that it is in the early stages, before serious structural changes have occurred in the affected joints, that treatment is often of great benefit, and cure may result. The pessimistic or *laissez-faire* attitude prevalent concerning the treatment of osteo-arthritis appears to be unjustified and exists because, from ignorance of the cause, the joints have been allowed to drift to advanced structural change.

Principle 1.—The possible foci of toxic absorption are very numerous, and several may coexist.

A careful and exhaustive examination of the whole patient is necessary in every case, and should particularly include the accessory sinuses and the whole of the alimentary, respiratory, and genito-urinary systems. Coöperation in this search between surgeon, physician, and bacteriologist is absolutely essential; lack of coöperation is responsible for many failures. In my series failure to discover such foci of toxic absorption or evidence of their previous existence was rare. In many cases the adherence to this principle, combined with vigorous local treatment, has led to cure. Although I attach importance to the presence of pyorrhœa alveolaris, yet it appears probable that in most cases the condition is associated with bacterial infection of other parts of the intestinal tract by organisms, particularly streptococci, which have escaped destruction by the gastric juice. In

† I am indebted to Sir Robert Jones for kind suggestions in the preparation of this section.

some of these cases intestinal stasis may be demonstrated, and in others the fæces contain pathogenic bacteria. It is my practice in all cases where marked pyorrhœa is present to investigate as fully as possible the condition of the whole alimentary tract. Toxic absorption from the latter probably constitutes the commonest mode of origin of osteo-arthritis. In women the uterus and its adnexa should always be investigated, and inquiry made as to menstrual irregularities or the presence of discharge. Simultaneously with treatment directed towards the eradication of foci of toxic absorption, the principle of treatment under discussion should include measures that assist the elimination of toxic substances by skin, bowels, and kidneys, and the raising of the natural powers of resistance of the patient by every means in our power. The latter may profitably include the use of autogenous vaccines.

Principle 2.—The diminution of intra-articular pressure. The articular cartilage, one of the most important functions of which is to preserve the sub-articular bone from friction, is being acted upon by toxic substances, and if subjected to pressure and friction must become worn away. Furthermore, the cancellous bone is atrophic and unable to stand normal pressures. Every effort should therefore be made to diminish articular pressure, particularly in the lower extremity, in the early stages; and if the toxic focus be dealt with vigorously at this stage, a cure may sometimes be anticipated. In cases with somewhat acute onset it is justifiable to immobilise the limb in plaster at first to attain this end, the joint being placed in the position which experience shows to be best should ankylosis occur. In cases of average severity the principle may be attained in the lower extremity by the wearing of a splint which prevents or minimises intra-articular friction, but allows the patient to take a moderate amount of exercise, for this improves his general condition and tends to prevent muscular wasting. The exercise should be carefully supervised; if carried to excess it may be harmful. In the lower extremity the principle of extension or of diminution of intra-articular pressure by keeping the joint surfaces apart combined with movement, although ideal theoretically, usually necessitates expensive apparatus, and it is doubtful whether the joint surfaces can be separated sufficiently without exercising strain upon the capsular ligaments and synovial membrane which are themselves often diseased. However, apart altogether from the question of combining extension with movement, the wearing of a comfortable, light, and well-fitting support, such as a Thomas calliper splint or moulded leather support, which keeps the joint in the position of greatest use to the patient, markedly diminishes intra-articular friction and usually brings about considerable relief. Pressure and friction are less potent factors in the upper extremity, but the same principles may be applied.

By this combination of diminution of intra-articular friction and treatment of foci of toxic absorption very marked improvement may be expected in early stages. Unfortunately, owing to the moderate severity of all the symptoms, the patient does not often seek relief until grave structural changes have taken place in the joint. The problem of treatment is then more difficult and the results not so satisfactory.

The principle of diminution of intra-articular friction remains the same. Broadly speaking, it may be achieved either by operative or non-operative measures; we may aim either at ankylosis or at the retention of a movable joint. The particular measures to be adopted depend on many different factors, and each case must be carefully considered on its own merits. A fairly firm extra-articular and fibrous ankylosis may usually be obtained by fixation in the optimum position in a suitable splint. If we desire to retain movement, short of drastic measures, the method of combining extension with movement mentioned above may be adopted. Before a splint can be applied to bring this about, manipulations to stretch adhesions, tenotomies, and in some cases the chiselling away of obstructing osteophytes may be necessary. A large number of these cases are painful because of the presence of adhesions in the joint. If an anæsthetic is given and these adhesions are broken down, and movements practised aided by a masseur, an improved range of movement with alleviation of pain often ensues, and this improvement is maintained for a considerable time. These manipulations should always be performed by a qualified medical man, and never under any circumstances by the instrument maker. When the splint is applied the patient is no longer afraid to walk owing to pain, and his general condition may markedly improve. There is reason to believe that if the toxic focus is properly dealt with the process of absorption may cease; the exposed bone, although it never becomes covered anew with articular cartilage, yet becomes sclerosed, hard, and polished; and a natural cure may be said to have occurred. Operative measures are indicated in acute cases with severe pain or in young or middle-aged persons in whom the disease appears to be no longer active, but has left a painful and deformed joint or one in which movement is limited. If a focus of toxic absorption exists, any benefit derived from operation must be temporary unless operation be accompanied or preceded by a successful attack upon the focus.

The results of operation are sometimes disappointing; this should be explained to the patient, whose personal desires should be carefully considered. For example, the pros and cons of ankylosis or of an attempt to obtain a movable joint should be frankly discussed. Arthroplasty, or the interposition of pedicled flaps of fascia or other substances between joint surfaces denuded of articular cartilage, is sometimes performed in the case of the hip, elbow, patello-femoral joint, &c. In some cases marked improvement occurs, especially if any toxic focus is sought out and successfully treated, or if the process has come to an end. Otherwise the fascial flap must apparently undergo the same fate as other intra-articular connective tissue structures.

In a recent discussion on the treatment of osteo-arthritis of the hip-joint at a meeting of the British Orthopædic Association it was almost unanimously agreed that the after-results of arthroplasty of this joint were disappointing. In the light of the pathological data given above the reason for this seems clear. Arthroplasty of the hip in no way diminishes weight-bearing and it is the weight of the body transmitted through the atrophic articular ends of the bones that causes a continuance of the symptoms. The operation devised by Sir Robert Jones often proves very beneficial in old people unable to stand the shock associated with excision. It is quickly performed and gives rise to very little shock.

Removal of osteophytes.—The ruthless chiselling away of osteophytes is to be deprecated, since they are compensatory developments which often play a useful rôle. Indications for removal of osteophytes are (1) when they interfere with movement; (2) when by pressure on an adjacent nerve they cause severe pain; and (3) when they are themselves subjected to painful pressure. Handley's operation of cheilotomy is especially indicated in comparatively young persons, where symptoms are not acute, but where movement is markedly restricted by osteophytic formations; such patients should be given the chance of a more movable joint short of the more drastic measures of arthroplasty or excision. There is usually adaptive shortening of the capsule and extra-articular structures, and removal of the osteophytes does not in itself in my experience usually restore full movement, although pain is markedly lessened.

Excision.—This procedure is particularly indicated in suitable cases where pain is very acute; it may be performed either to obtain fixation or movement. In the former case, although the cancellous tissue of the bony extremities is of very open and fatty texture, good union usually occurs. Excision of the hip is rarely indicated in elderly persons, since the turning out of the head of the femur is associated with a considerable degree of shock. In young or middle-aged persons the operation is indicated where pain is marked. In the past the operation has been perhaps, somewhat unjustly condemned; if proper after-treatment is adopted, and the toxic focus suitably treated, there

appears to be no reason to expect the instability and recurrence of the disease in the new joint, which has been often noted in the past.

Arthrodesis.—The results of this procedure, particularly in the hip, have been somewhat disappointing owing to frequent failure to obtain union. I believe that the disappointing results can be largely explained on pathological grounds since, as we have seen, the sub-articular layer of bone is sclerosed and does not therefore readily unite with the corresponding opposed layer.

Principle 3.—It can hardly be sufficiently emphasised that unless the first two principles are adhered to no great or lasting benefit may be derived from local measures, which form a useful adjunct, but when used by themselves almost invariably lead to disappointment. Unfortunately, it is only too common to see cases that have tried every form of local therapy and have travelled from one hydrotherapeutic establishment to another, and during the whole period no attention has been paid to the two first all-important principles. Radiant heat, electricity, local baths, ionisation, massage and movements, both active and passive, are often of great value, since the stagnation of circulation that favours toxic action and inhibits the action of antibodies is prevented. Furthermore, in all cases of osteo-arthritis, unless we are definitely aiming at ankylosis, the joint or joints should be put through their full range of movement each day, for by this precaution ankylosis, deformity, and muscular wasting may be largely prevented, and, in addition, interference with movement by osteophytes is thus avoided. The faith of some in local measures cannot be better illustrated than by the fact that the first two principles that I have mentioned are frequently ignored altogether.

Principle 4.—Dietetic and medicinal. Some physicians lay considerable stress upon these factors, recommending reduction of the carbohydrate and fatty constituents of the diet in order to prevent increase of the patient's weight. Malt liquors are excluded, although light wines—such as Moselle—in moderate quantity are permitted. The rationale given for this treatment is the irritable condition of the joint due to the presence of osteophytes, a condition increased by any addition to the body-weight; but this treatment is based upon erroneous pathological views. Sufferers from osteo-arthritis are so apt to lose weight from the constant exhausting pain that the diet should be generous, strengthening, and digestible, and yet not of such a nature as to favour intestinal putrefaction. With regard to medicine, guaiacum, sulphur, arsenic, and the iodides all have advocates.

In conclusion, it is my pleasant duty to express my thanks to those—too numerous to name—who have assisted in various ways in the research. Certain acknowledgments have already been made in the text. In particular, the work owes very much of the kindness, help, and criticism of Prof. S. G. Shattock, who has shown me the greatest sympathy and encouragement. To Sir Arthur Keith I am indebted for much help and for granting me permission to work at the Royal College of Surgeons. The Medical Research Council have generously defrayed the expenses of the research by a grant from their funds. My colleagues at the Seamen's Hospital, Greenwich, particularly Prof. R. T. Hewlett and Dr. Arthur Davies, have rendered valuable assistance. Finally, I must express my gratitude to the curators of many pathological museums, to Dr. T. S. P. Strangeways for the loan of specimens, and to Dr. W. Haward, of the Ministry of Pensions, through whose help I have had special facilities for examining pensioners suffering from disabilities of the joints.

References.

Eve, Sir Frederic S.: Bones of Ancient Egyptians showing Periostitis Associated with Osteo-arthritis, Trans. Path. Soc., 1890, xli., 242.
Hunterian MS.: Account of the Dissection of Morbid Bodies, 70, No. 54.
Haygarth: Clinical History of the Nodosity of the Joints, 1805.
Cruveilhier: Anatomie Pathologique.

(*Continued at foot of next column.*)

The Croonian Lectures

ON THE

CLINICAL SYMPTOMS OF CEREBELLAR DISEASE

AND THEIR INTERPRETATION.

Delivered before the Royal College of Physicians of London

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LECTURE III.[1]

(*Delivered on June 15th.*)

THE last lecture dealt with the disorders of simple voluntary movements produced by cerebellar lesions; to-day we must consider the disturbances in more complex actions and will begin with those seen in alternate movements.

ADIADOCHOKINESIS.

Babinski originally pointed out that a patient with cerebellar disease is frequently unable to perform rapid alternate movements as quickly and as accurately as normal persons, even though each individual movement alone can be properly executed. To this disability he gave the name adiadochokinesis. A careful analysis of this symptom is necessary, since the functional disturbances to which it is due throw considerable light on the defect phenomena that result from cerebellar lesions. A record of the alternate movements by a graphic method is essential, since it enables us to recognise the more elementary abnormalities. One of the most convenient tests is rapid pronation and supination of the forearm at the elbow, but other alternate movements, as flexion and extension of the fingers, of the forearm, or of the foot at the ankle-joint, may be employed; the same disturbances may be observed in more common and habitual acts, as shaking hands, clapping hands, tapping a table, stamping the foot, &c. When a patient with a unilateral cerebellar lesion pronates and supinates his unaffected forearm as rapidly as possible the successive excursions are remarkably regular in both rate and range, and other segments of the limb not actively concerned in the act, as the upper arm, hand, and the fingers, are adequately fixed at their proximal articulations, and consequently maintain their proper postural relations to the moving forearm. On the affected side, on the contrary, the primary movements are irregular in rate and range, and various accessory

[1] Lectures I. and II. were published in THE LANCET of June 17th and 24th respectively, and Lecture IV. will follow.

(*Continued from preceding column.*)

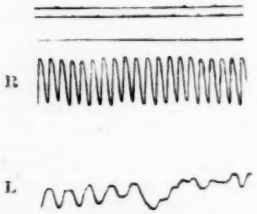
Deville: Bull. Soc. Anatom., xxii., p. 272; xxiii., p. 141.
Broca: Bull. Soc. Anatom., xxv., p. 435.
Adams: Chronic Rheumatoid Arthritis, Dublin 1857.
Charcot: Thèse de Paris, 1855.
Garrod, Sir A. B.: Gout and Rheumatic Gout, 1876.
Vidal: Thèse de Paris, 1855.
Goldthwait: Infectious Arthritis, Boston Med. and Surg. Jour., 1904, cl., 363.
Nathen: Amer. Jour. Med. Sciences, December, 1906.
Nichols and Richardson: Arthritis Deformans, Boston, 1910.
Fisher: A Study of Loose Bodies in Joints, British Jour. of Surgery, 1920–21, viii., No. 32.
Redfern: On the Healing of Wounds in Articular Cartilage, Month. Jour. Med. Sc., 1851, xiii.
Ogston: Jour. Anat. and Physiol., 1876, x., p. 49; vol. xii., p. 503.
Toynbee: The Non-vascularity of Certain Animal Tissues, Phil. Trans., 1841, Part II., p. 159.
Cornil and Ranvier: Histologie Pathologique, 1901–12.
Hoffa and Wollenberg: Arthritis Deformans und sogenannten chronischer Gelenkrheumatismus, Stuttgart, 1908.
Charcot: Lectures on Senile Diseases, New Sydenham Society, 1881.
Lane, Arbuthnot: Path. Soc. Trans., 1884, xxxv., p. 229; xxxvi., p. 387.

movements occur in segments of the limb proximal and distal to the moving part.

Generally the most obvious feature is the slowness of the movements; their rate may be reduced to a half or third of that of the normal limb, but slowness is not constant. It often happens that when the action is first attempted the limb moves fairly quickly, but if continued the excursions become progressively slower until the patient may give up the attempt. (Fig. 1.) Irregularity in rate may be equally prominent; instead of alternating rapidly and without an appreciable delay, pronation and supination may be separated by appreciable intervals which vary constantly. Frequently the limb is arrested abruptly in some position, often at the end of an excursion, until the patient by a special effort moves it again. The slowness results mainly from this delay at the turn, each individual movement being usually performed with normal rapidity, though tracings frequently show a delay in the commencement of each.

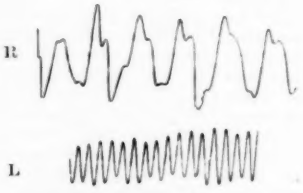
The range of movement is also irregular; occasionally some or all of the excursions are excessive, or an excursion may be arrested before it has reached its natural limit. There can be no doubt that the rate of movement is closely related to the range, the larger excursions being the quicker, but the abnormality of the one is certainly not dependent on that of the other. The irregularity in range also becomes more prominent when the limb tires. The movements of the affected arm are almost invariably more inaccurate and less complete when the patient attempts to perform them simultaneously with both limbs; this is partly due to insufficient attention being devoted to the affected one, but partly to the confusion that naturally arises when, owing to lack of synchronicity, different acts are at the same time attempted by the two limbs.

FIG. 1.



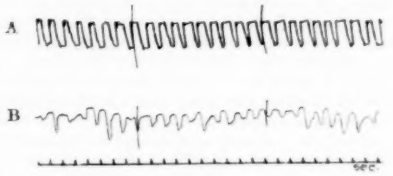
Tracings of rapid alternate supination and pronation of the right (R) and left (L) arms in case of gunshot wound of the left side of the cerebellum.

FIG. 2.



Tracings of rapid flexion and extension of the right (R) and left (L) forearms in a case of right-sided cerebellar injury.

FIG. 3.



A is a tracing of rapid opening and closing of the fingers; B a tracing of the synergic movements at the wrist in a case of cerebellar disease; these are much more irregular than in a normal limb.

Inappropriate Accessory Movements.

Inappropriate accessory movements are frequently an equally prominent feature, though they have attracted less attention. If the elbow be not firmly supported or held in position the upper arm sways about owing to displacements at the shoulder, every possible movement occurring, though abduction and adduction generally predominate. Similarly the hand, and frequently the fingers too, swing about inertly; one of the most common displacements being ulnarward deviation of the wrist with flexion of the ulnar fingers as the forearm supinates. But there can be no doubt that in addition to these inert amorphous movements more regular acts may replace that which the patient attempts; the forearm, for instance, may begin to flex and extend, and I have repeatedly seen opening and closing of the fingers. This is more likely to happen when pronation and supination is continued for a time; then as the limb tires the effort apparently degenerates into other movements.

Some of these adventitious movements, as the inert flopping of the wrist and fingers, can be attributed wholly to the toneless state of the muscles that normally fix them. This is also the origin of some of the purposeless deviations at the shoulder, but if the muscles around the latter be carefully palpated active contractions can be easily detected in many of them. They can be also demonstrated if the observer grasps the arm and attempts to displace it while the patient is engaged in the action, for owing to these contractions it offers more than normal resistance to displacement. This led me to believe that in attempting rapid pronation and supination there might be an irregular spread of the innervation to muscles which should not be actively concerned in the act, but further observations have made it probable that these active contractions represent a voluntary attempt to fix those segments of the limb which are displaced passively owing to absence of fixating tone in their muscles. These adventitious movements have a considerable influence on the regularity of the actions that are attempted, since these require adequate fixation of the arm on which the forearm moves, and the inert swaying of the distal segments of the limb must also disturb the equilibrium of the moving parts. An attempt to flex and extend the forearm at the elbow reveals disturbances of the same type. Irregularity in the range is often striking owing to the larger angle of movement possible; not uncommonly the forearm is flexed until it is checked by the ligaments of the elbow-joint, the sudden stress on which may give pain or discomfort. (Fig. 2.) The distal segments may also flop about inertly, the wrist flexing as the hand approaches the shoulder and extending as it is jerked away from it. The elbow is often jerked up by the momentum of the flexing forearm, and if not supported it may wobble about owing to passive displacements at the shoulder.

Abnormal Finger Movements.

In flexion and extension of the fingers additional abnormalities can be seen. Though the fingers be all moved together at first they soon fall out of alignment, or fail to flex and extend simultaneously; in fact, extension of one finger may commence before some of the others are fully flexed. The fingers often spread, too, and assume weird attitudes, and the thumb may be adducted either over or under them. This naturally leads to a confusion that may make the act apparently impossible. One intelligent patient explained that "after I have done it for a time I seem to lose the power of opening and closing my hand properly," and another with a right-sided lesion said, "I seem to do it subconsciously on the left side, but on the right I have to think out each movement; the arm comes to a dead stop and I have to think before starting again." Other patients state they have to "drive" the affected arm. In the second place, there is often a disturbance in the synergic movements of the wrist and fingers. Normally the hand is extended at the wrist by active contractions of its extensor muscles as the fingers flex, but in a limb subject to cerebellar disorders this synergic extension of the wrist may fail so that the fingers and hand are both flexed by the long flexors of the fingers, or the wrist and fingers may not move synchronously. (Fig. 3.)

Flexion and extension of the foot at the ankle may be equally irregular in rate and range. When this is attempted on the normal side as the patient lies in bed the knee is usually raised a little as the foot dorsiflexes by a slight degree of flexion at both hip and knee; on the affected side these synergic movements are generally much more irregular, they may be either absent or excessive. If he attempts this action while sitting on a high stool with his legs hanging free the affected limb may sway about widely owing to movement at the knee. Similarly, though the patient can keep the normal foot fixed at the ankle while he flexes and extends his toes, the foot of the affected side flexes and extends or turns in and out as the toes move. In attempting to tap a table as rapidly as possible it frequently happens that the hand on reaching the table slides along it before rising again; this is apparently due to accessory movements at other joints, and especially at the shoulder. Light-line records of such movements also show that the moving point, instead of following a straight line, describes curves or swings around in irregular ellipses. Similarly, on attempting to stamp his foot on the ground the limb often sways about in space before reaching it instead of moving vertically.

Most of these disturbances result from the simpler disorders of movement we have already studied, and can therefore be largely attributed to defect of the postural tone which normally controls the range of movement, and ensures the correct fixation of those parts on which the moving segment is articulated. This is shown by the fact that the irregularities diminish when the proximal segments are firmly fixed, and also by an experiment I have carried out in several of my recent cases. A light elastic rubber band is tied at its middle around the segment of the limb that is moved and its two ends are held slightly stretched in the plane in which the movements should be made, so that each excursion is performed against its elastic resistance. In testing flexion and extension of the forearm, for instance, the band being fixed to the wrist, one end is held near the shoulder and the other in the plane in which the forearm moves in extending; its two portions consequently represent the tonic resistance of the two groups of antagonistic muscles. I have invariably found that the movements are then executed more accurately than when the arm is free, and the patient feels that it is easier to do them. Dysmetria, or disturbance in the range of the individual movements, is naturally a factor too.

Dissociation in Time and Force of Muscle Contraction.

The failure in the proper synergic associations of the fingers and wrist, and of ankle and knee cannot, however, be explained wholly by lack of tone. Deficiency of this in the extensors of the wrist may account for the simultaneous flexion of hand and fingers by the long flexors of the fingers, but not infrequently the wrist is over-extended as the fingers close. We are consequently compelled to assume a dissociation in the time and force of the contractions of the separate groups of muscles that should act synergically; this may be due to a relatively greater delay in initiating the contractions in one group than in others, and this we cannot yet attribute to hypotonia only.

The confusion which appears when alternate movements are continued for a time is a natural result of these elementary disturbances. Normally such simple alternate movements are controlled automatically by subconscious mechanisms; when this control is defective it must be replaced by conscious efforts which are more liable to tire, and when tired to become confused, especially when the mechanisms through which they act are disordered. The influence of attention on the movements of the affected limb is shown by the increased irregularity when it is diverted by simultaneous use of two limbs or otherwise. The erroneous but purposive movements that may develop when the patient is forced to persist in an action, as the substitution of flexion and extension of the fingers for pronation and supination of the forearm, may be probably explained by a subconscious effort to escape from an action in which both muscles and attention have tired. It is certainly not due directly to the cerebellar defect.

STANDING AND WALKING.

The abnormalities in standing and walking depend partly on the primary defect phenomena of the cerebellar disease, and partly on the automatic and voluntary measures by which the patient attempts to correct or maintain his balance. It is not always easy to separate these two groups of symptoms, or to determine which disturbances are primarily due to the lesion.

Unilateral Lesions.

When the lesion is unilateral the attitude in standing is frequently unnatural. The trunk and head are generally inclined to the affected side with the spine concave in this direction, but by tilting his pelvis the patient throws as much of his weight as possible on the normal leg. The homolateral shoulder is generally in front of the other since the body is rotated on its longitudinal axis towards the normal side. The arm usually hangs inertly and is not used in efforts to preserve equilibrium, but occasionally it is either adducted to the side or separated from it. The attitude of the head is not constant; it is most commonly inclined to the affected side with the face rotated towards the opposite shoulder.

In recent and severe injuries the patient may be unable to stand erect without support or assistance; he inclines towards the side of the lesion, and may fall to it passively without making adequate attempts to avoid doing so. Many are unable to explain why this happens, others say it is as though a magnet or some unseen agency drew them in this direction. When the symptoms are less severe and the patient can stand without support he can be more easily pushed over to the affected side; a gentle tap on the contralateral shoulder may be sufficient to disturb his balance, though he can resist more forcible blows that tend to displace him to the normal side. As he can be also thrown over to the affected side when he sits unsupported, the instability must be partly due to disturbances in the functions of the trunk muscles. In falling he often holds himself straight and rigid, not flexing his trunk to the normal side in the natural manner. The homolateral leg is usually abducted and often rotated outwards; this attitude is probably either a voluntary or a reflex device to assure equilibrium. Further, the upright attitude is not maintained steadily, the whole body frequently sways about, the head is tremulous, and irregular contractions may be seen in the muscles of the leg.

The danger of falling is in part at least due to the instability of the affected leg; many patients state that this gives way under them and that they consequently collapse suddenly, and inspection may show that the contractions of the muscles around the knee- and ankle-joints are irregular or intermittent. Almost invariably the patient has more difficulty in standing on the affected leg than on the other; many who keep their balance easily when resting on both feet fall at once when on this alone. It is often due to failure in extension of the knee which flexes under the weight, or to lack of stabile fixation of the ankle owing to which his foot turns under him. The leg seems to be used as a passive support as a stilt would be rather than as an active member, and even when standing at rest the abducted limb often gives the impression that it is employed mainly as a shore or prop to prevent him falling to this side. Its unsteadiness usually increases when deprived of the support of the boot; then irregular contractions of the tendons on the dorsum of the foot may be visible, and toes do not attempt to clutch the ground as they normally do when balance is threatened. The patient is also unable to readjust his balance promptly or correctly on the displacement of any part of his body that shifts his centre of gravity; he may, for instance, fall if his head is suddenly tilted in any direction, or if the observer's hand placed in his axilla throws his arm

unexpectedly from his side. If placed on the middle of a plank that is raised at one or other end the patient falls more readily, especially when tilted towards the affected side.

Gait in Unilateral Lesions.

The gait is generally so characteristic in a unilateral lesion of severe degree that it can be recognised at once. The movements of the homolateral leg are irregular; the foot is often raised too high owing to excessive flexion at the hip, and may either fall to the floor inertly or be brought to it with undue force. Sometimes it hovers over the floor and hesitates for a moment before coming to it. In some patients, however, the affected limb is in some steps dragged forwards or raised so little that the toes scrape along the floor. The placing of the foot is frequently incorrect; most commonly it is abducted too much, but it is often brought in front of the other, so that in advancing the latter he may trip over it and fall towards his normal side. Sometimes the whole sole falls flat on the floor, or there may be an excessive interval between the placing of the heel and the dropping of the toes, or it may come in contact with the ground in either an inverted or everted attitude. Occasionally while the limb is advancing the foot flops about inertly, or the limb may be brought forward extended rigidly at the knee with the foot dorsiflexed. The steps are also irregular in length; some are too long, others too short, but when there is much disturbance of equilibrium they tend to exceed those of the normal limb as the patient, afraid to trust his weight on the affected leg, takes short shuffling steps with the other. This irregularity in placing the foot is more obvious if the patient, even when supported, attempts to walk heel to toe along a line. In walking sideways with the normal limb in front the affected one may be merely dragged along the floor, but when it leads its steps are unequal and irregular, and the foot may fall either in front of or behind the other.

There are two more or less characteristic features in the gait; in the first place the patient reels, lurches, or stumbles towards the affected side, in the second he tends to deviate in this direction, and if his eyes are closed he may wander at a considerable angle from the line he intended to follow. One result of the tendency to stumble towards the affected side is that the patient jolts into anyone on this side of him, and he consequently prefers that his attendant walks on his normal side and merely places a steadying hand on this arm. The tendency to deviate becomes more obvious when he walks around a chair; when his affected side is towards the chair he is constantly stumbling and falling to it, but he deviates more and more from it, following the course of an opening spiral, when he walks around it in the opposite direction. These features are, however, frequently obscured or complicated by voluntary efforts to maintain balance; the patient may, for instance, learn to incline and deviate to the opposite side, and though he is more liable to fall in the direction of the lesion the excessive abduction of the affected leg may throw him towards the other side, or he may stumble in this direction owing to over-correction.

It is usually asserted that vision has no influence on these disturbances of gait and equilibrium; this is literally true, but many patients become nervous of falling on closing their eyes, and the voluntary efforts they make to avoid it may disturb their balance. Some patients keep their balance better when moving quickly than when walking slowly and deliberately; it seems that the momentum they acquire in rapid movement is of more service than the voluntary control they can exercise when walking slowly, just as it is more easy to ride a bicycle at a fast than at a slow rate. It is particularly on turning that equilibrium is in danger owing to failure to control or modify the inertia of the body by proper movements; even a sudden turning of the head may upset the balance. Similarly, the patient may be unable to halt suddenly on a word of command when walking either forwards or backwards; when advancing he may totter forwards by a few shuffling steps or throw himself on his toes, or on walking backwards may be unable to arrest himself without assistance. For the same reason he may fail to attain equilibrium immediately on rising to his feet from a low seat, and on sitting down quickly he may fall backwards. Irregularity of the ground increases the unsteadiness, since the patient fails to adjust his foot to any slight obstacle or unevenness it may encounter, but on a polished or slippery floor the affected foot is liable to slide from under him. Ascending and especially descending an incline is also more difficult than walking on the level, and going up and coming down stairs even more so; in ascending the foot is often elevated excessively, or the toe may strike the rise of the next step or come to it too forcibly, while the patient usually descends one step at a time owing to fear of trusting his weight on the affected limb, when its hip, knee, and ankle flex.

In walking the homolateral arm usually hangs inertly by his side and is not swung actively forwards as he advances the opposite foot; sometimes, however, it is held against the thorax or abducted from it with the elbow partially flexed.

Gait in Bilateral Lesions.

The maintenance of equilibrium in the upright position is much more difficult when both sides of the cerebellum are injured, especially when the vermis is involved. Then the patient generally stands with feet widely separated, his body swaying from side to side and generally crouched forwards, as though lack of tone in the vertebral muscles made it impossible to hold it erect. He may fall in any direction or lose his balance immediately if his centre of gravity is suddenly displaced. Certain patients with lesions of the vermis have a tendency to totter backwards or forwards for a few steps and then fall without making any adequate attempts to save themselves; in less severe cases this may happen only when the patient is suddenly pushed in one direction. On attempting to walk he sways, staggers, and reels in all directions like a drunken man, and though able to maintain equilibrium when at rest, may fall on attempting to walk. The movements of his legs have the same irregular characters as those seen in cases of unilateral injury, but the steps are more hurried as the patient fears to throw his weight on either foot alone. When a fall occurs it may be either due to the misplacement of the feet, or failure to adjust the weight of the body to the unnatural positions into which they fall, or to a sudden "giving way" of the legs. The difficulty in keeping the centre of gravity over the base of support is a striking feature in many cases; most commonly the body, instead of being carried forward with the legs, lags behind so that the patient falls backwards unless supported by pressure from behind, or pulled forwards. When he stops suddenly, or attempts to walk backwards, he totters in this direction with short shuffling steps, his heels alone perhaps bearing his weight, or rocking to and fro in the antero-posterior plane on heel and toes. In such cases the absence of appropriate efforts to maintain equilibrium is very remarkable; the patient may fall inertly like a doll. More rarely there is a tendency to incline forwards and carry the centre of gravity in front of the toes; then the patient may be unable to halt suddenly when walking, or may totter and stumble forwards when pressed from behind.

The large part played in the compensation of the cerebellar defect phenomena in gait by voluntary effort, or by the intervention of other portions of the nervous system, is shown by the effect of training and education. The symptoms produced by an acute lesion diminish more rapidly when the patient is systematically trained to walk correctly, and the disturbances are, in relation to the severity and extent of the lesion, never so great when the disease develops so slowly that compensation can occur *pari passu* with its progress. Voluntary correction probably plays the most important part, since gait invariably

becomes more unsteady when the patients tire, or are dulled by a dose of alcohol or opium, or when their attention is diverted.

Factors of Instability.

On analysing the instability in standing and walking and the tendency to fall, we find they can be attributed to (1) errors in moving and placing the affected leg, (2) instability of the leg making it liable to flex under the patient's weight, and (3) a failure to adjust promptly the centre of gravity to the base on which the patient rests, or to the line on which he moves. The inaccuracies in moving and placing the foot are identical with those which occur in voluntary movements of the individual limbs and must be due to the same causes. It is true that the "ataxia" of the leg in walking is usually greater than in movements performed when the patient lies on his back, but this is natural since the trunk being firmly fixed in the latter position the limb has a firm base on which to move, while in walking the pelvis is constantly changing its position in relation to the floor, and the limb must consequently adapt its movements to constantly varying relations of space. The sudden flexing or "giving way" of the leg under the weight of the body can be also attributed to lack of adequate postural fixation. We have seen that analogous disturbances occur in the arm, which is often unable to maintain attitudes, and in which sudden relaxations of the muscles may allow objects to fall from the hand. When standing on the affected limb alone the ankle may invert under the patient's weight, or the knee may not remain rigidly extended, or, what is more important, the trunk may sway about irregularly on the hip which bears it.

The failure to assure equilibrium by adjusting the centre of gravity to the base of support is partly due to the same causes. In locomotion the body is in a state of unstable equilibrium, since its base of support is small and its centre of gravity is constantly shifting in all planes of space. Walking requires not merely the correct movements of the legs, but also the proper adjustment of the rest of the body to the positions in which they are placed. The advancing leg is at first extended, but in order to carry the body forward it must flex at the knee and ankle, and at the same time rock on its sole from heel to toes. In these movements the flexing segments can no longer depend on the formation of their joints and ligaments, but must be adequately fixed by the tonic contractions of their muscles, and if this fails the centre of gravity is further displaced and its adjustment to the supporting foot becomes more complicated. The exaggerated oscillations of the body, due to the atonic state of the muscles that move and support the vertebral column, and the irregularity of the steps increase further the difficulty in correction.

That equilibrium is always more disturbed by bilateral than by unilateral lesions is due to the fact that the muscles on both sides of the body being affected the postures and the stability of the trunk in movements are more disturbed; and both lower limbs being involved the patient has no stable base on which to move, as he has in alternate steps when the disease is one-sided. Though muscular hypotonia plays a very large part in the disturbances of equilibrium they cannot be wholly explained by it alone. A careful investigation of gait in cerebellar disease reveals an irregularity in the accurate combination of movements necessary to assure balance, analogous with that which we have seen in the affected arm and due to the same factors. Clinical observations certainly lend no support to the theory originally propounded by Magendie and later adopted or modified by many authors, that the cerebellum is an organ for equilibration, since the loss of balance in cerebellar disease is no greater than might be expected to result from the disturbances of the more elementary movements and postures of the limbs and trunk.

DISTURBANCES OF SPEECH.

As a rule only relatively extensive lesions of the cerebellum, and particularly those that involve the vermis, disturb articulation and phonation seriously, but speech may be affected by disease strictly limited to one lateral lobe and not bilateral lesions only, as Jelgersma, Brouwer and Coenen assert. My experience also disproves Stenvers' hypothesis that the right side of the cerebellum has a more special relation to it.

The most striking features are the slow, drawling, and monotonous character of the voice, the unnatural separation of the syllables, and the slurred, jerky, and often explosive manner in which they are uttered. The indistinctness is usually due to defective combination of the consonants, but the vowel sounds are often slurred too. Articulation and phonation are equally affected, and the voice is frequently too loud or is not properly modulated to the circumstances. The patients and their friends usually describe the change as a "stuttering," or a "thickness," or a "jumbling" of speech. It generally becomes more indistinct and sometimes scarcely intelligible when the patient tires. Many with recent and severe lesions complain that they can often not use the proper word, if it is a long and difficult one, by which to express their ideas. In severe bilateral lesions speech may be unintelligible for a time; in one man, who had a transverse bullet wound through both sides of his cerebellum, it was merely a slow drawling hum in which only isolated syllables could be distinguished. As he improved it became a succession of widely separated syllables, each pronounced slowly in an unnaturally high-pitched voice. The effort apparently necessary in such cases to utter even a few syllables or a sentence is another remarkable feature. It is as though the utterance of every sound had to be controlled voluntarily. Patients occasionally complain of this difficulty or of their inability to utter words without a special care, especially after speaking quickly for a time. There is frequently, also, a marked excess of grimacing or purposeless facial movements during speech, and the expressional gestures normally associated with it are often irregular and inappropriate. A tendency to unnatural explosive laughter, in which the patient may eject saliva from his lips, is not uncommon in bilateral disease.

Speech improves, as a rule, rapidly when the affection is unilateral, but recovery is slower, and may never be perfect in patients with bilateral lesions. In the more chronic forms of cerebellar disease, as the atrophies, its disorders are usually permanent. These abnormalities of speech can be explained by the same factors that disturb the finer movements of the limbs. When the delicacy and precision of the individual movements of the larynx, palate, tongue, lips, and of the chest, and the accurate manner in which they must be associated to produce normal speech is remembered, the disturbing effect of defective relations of the separate parts in posture and movement is obvious.

DISTURBANCES OF THE OCULAR MOVEMENTS AND NYSTAGMUS.

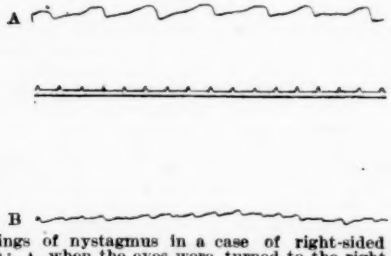
There are few cases of severe cerebellar injury which do not present, especially in their acute stages, disturbances of the ocular movements. Some of these are transient unless the disease be progressive, while others, and particularly nystagmus, may persist indefinitely. In the early stages of any acute lesion the eyes while at rest are generally directed slightly to the contralateral side of the primary central position. This deviation is never so great as that which occurs in a conjugate ocular palsy, and is never associated with loss of the power of movement to the affected side, though this is often more difficult than deviation to the normal side. Even when it is effected there is commonly an inability to maintain them in this attitude as they tend to recede towards the middle line. This relative weakness of deviation to the affected side usually disappears rapidly. The vertical movements and convergence are not affected in this way by unilateral lesions, but they may be executed less easily than is normal when acute bilateral disease exists. True ocular palsies never

result from lesions limited to the cerebellum, their frequent occurrence in cases of tumour and abscess being due to extension of the disease to, or compressions of, the brain-stem or of the extra-medullary trunks of the ocular nerves. The only disturbances in the parallelism of the optic axes which occurs is known as "skew-deviation," and it is rare. In it the homolateral eye is directed downwards and inwards, and the contralateral outwards and slightly upwards, but as the visual axes generally become parallel when fixation is attempted diplopia does not usually result; two of my cases, however, complained of double vision. Skew-deviation is always a transient condition, disappearing frequently within a few days of the occurrence of the lesion. It is identical with the deviation originally described by Magendie in animals, in which it appears chiefly after section of the vestibular nerve or injury of the inferior or middle cerebellar peduncles. In man it probably occurs only when the lesion extends down to the neighbourhood of the para-cerebellar nuclei.

Nystagmus.

This is a much more common symptom; in fact, very few lesions of the cerebellum fail to show it in some form or other. It was absent in only three of the gunshot injuries I observed, and it occurred in all the cerebellar tumours included in this study. It is always more marked immediately after the development of a severe lesion, and in slighter cases it may subside quickly or disappear. Its degree and the form it assumes vary considerably in different cases, and it is therefore advisable to describe first the most characteristic type which is seen in the acute stages of a unilateral lesion. The eyes almost invariably remain steadily in the position they assume spontaneously, whether it be the central or to the normal side of it, but any movement from this position evokes the characteristic nystagmoid jerks. These are always most pronounced when the patient moves his eyes laterally towards the side of the lesion. Then the

FIG. 4.



Tracings of nystagmus in a case of right-sided cerebellar tumour: A, when the eyes were turned to the right; B, when they were directed to the left. Read from right to left. Time markings in 1/5 sec.

nystagmus consists of slow oscillations of relatively large range, which are more or less regular in both rate and amplitude, and usually persist as long as accurate fixation is maintained, but when this tires and the eyes deviate towards the middle line they cease or become irregular or intermittent. Each oscillation consists of a quick phase which is always in the direction of the voluntary movement of the eyes, and of a slow phase during which the eyes recede towards their position of rest. (Fig. 4 A.) Both the rate and the range of these jerks vary considerably in different cases; sometimes the rate may be as slow as three jerks in two seconds, but it is usually more rapid; in 12 acute cases in which it was counted it varied between 15 and 30 oscillations in 10 seconds. The range of the jerks is variable, too, and is usually larger though less regular when the deviation of the eyes tires. Both the rate and range of the oscillations usually increase on moving the object fixed further towards the affected side.

On turning the eyes towards the normal side the oscillations are typically smaller in range, more rapid in rate, and usually less regular. Each consists of two phases—a rapid jerk in the direction of the voluntary movement, and a slow recession of the eyes towards their primary position, but the difference in rate is usually less than on deviation to the affected side. (Fig. 4 B.) The nystagmus evoked by this position is often represented by a short series of fine oscillations separated by pauses, and it rarely persists so long as when the eyes are turned to the opposite side. In many cases the jerks occurring on lateral deviation of the eyes are purely horizontal, but there is often some rotation of the eyes, too, most commonly in the direction of the rapid phase and downwards—that is, clockwise rotation on movement of the eyes to the left and anti-clockwise when they are turned to the right. Vertical nystagmus is less constant, but on looking upwards there is frequently an occasional jerk of the eyes, more rarely a regular sequence of oscillations, upwards or obliquely upwards and towards the affected side. Occasionally some rotation occurs, too, which is generally upwards and to the affected side. Nystagmus on downward movement of the eyes is much less common; when the cerebellar lesion is unilateral it is generally represented only by intermittent downward jerks. On central fixation nystagmus occurs as a rule only in cases with recent and severe lesions. Then, on moving the eyes into the primary central position from that which they spontaneously assume, more or less regular jerks develop, the quick phase being towards the side of the disease. In certain of these cases the eyes are at complete rest only when directed at an angle of from 10° to 30° towards the contralateral side. We shall refer to this as the "rest point." Similar nystagmoid jerks occur sometimes on convergence, the slow phase in both eyes being towards the normal and the quick towards the affected side.

This characteristic form of nystagmus is certainly not present in every case of unilateral lesion; but the almost invariable rule is that the jerks are most easily elicited by deviating the eyes towards the side affected, and the jerks occurring on movement in this direction are slower and coarser than those which appear on deviation towards the normal side. The quick phase of the jerk is invariably in the direction in which the eyes are voluntarily moved. Frequently no vertical oscillations can be obtained, and those on lateral movement may be irregular or represented by intermittent jerks only. Remissions frequently occur, particularly on contralateral regard and when the patient fails to fix a point accurately owing to inattention or tiring.

The nystagmus produced by lesions of the cerebellum is essentially a fixation nystagmus—that is, it is elicited only by, or is most pronounced on, accurate fixation of some point by the eyes; and though it may occur under conditions in which fixation is impossible, as when the patient wears spectacles with high convex lenses and blinkers or when an opaque screen is held within a short distance of the eyes, it is less marked and less regular. Then the most striking feature may be the failure of the eyes to remain in that position to which the patient turns them, especially when it is to the side of the lesion. It is also less pronounced when the patient is simply told to look to the right or left and not given some point to fix. Change in posture of the eyes, as when the point fixed is moved, temporarily increases the range of the jerks; in mild cases, in fact, absence of steady fixation when the eyes take up a new posture may be the only abnormality.

Nystagmus is generally more symmetrical in bilateral injuries of the cerebellum, but the same rule holds, that the quick phase is in that direction in which the eyes are moved voluntarily. Vertical nystagmus occurs more commonly when the vermis is involved, though it may be seen when the injury is limited to one-half of the cerebellum.

Nystagmus of cerebellar disease is consequently a well-defined and systematised disturbance. It cannot be regarded as simply an "ataxia" of the ocular movements or a tremor of the eyes. An observation I have recently made throws light on the nature of the oscillations. A girl in whom a tumour was

removed from the left side of the cerebellum eight years ago has had since then a complete paralysis of the left external rectus muscle, but on attempting to look to the left characteristic nystagmus appears in both eyes. The jerks of the left eye, which are identical in time and range with those of the right, can be explained only by periodic relaxations of the left adductor muscles, and each jerk must be consequently regarded as a coördinated act in which the antagonists relax as the prime movers contract. Kubo has made a similar observation in animals after division of an ocular muscle.

The frequency with which nystagmus occurs in all forms of cerebellar disease leaves no doubt that it results directly from lesions of this organ, and is not dependent on affections of the neighbouring structures, like Deiters's nucleus, as Rothmann and Marburg assume. On analysing the nystagmus we find that it is composed of slow deviations of the eyes from the position to which they are moved voluntarily towards their rest point, constituting the slow phase, and the correction of this deviation by quicker and more abrupt jerks in the direction of the voluntary movement. The essential component of nystagmus is consequently the slow phase of the jerk, and this is obviously due to a failure of the eyes to maintain postures. Consequently nystagmus can be attributed to a disturbance of the tonic contractions of the ocular muscles by which postures are maintained. Simonelli has also regarded it as a manifestation of defective postural activity. We must therefore conclude that each half of the cerebellum has an influence on the maintenance of all postures of the eyes, and that this influence is greater when the eyes are deviated towards the same side, less when turned towards the opposite. Each side of the cerebellum is also to some extent concerned in the vertical postures of the eyes, though this probably is mainly a function of the vermis.

The quick phase by which the eyes are replaced in the position from which they had receded is probably not of cerebellar origin, but the central mechanism on which it depends is not definitely determined yet. It is improbable that it is of cortical origin, as Bartels, Wilson, and Pike assume, since Magnus and de Kleijn have found that it is possible to elicit nystagmus in animals after removal of the forebrain and thalamencephalon; the reflex centre of the quick phase must consequently lie in the midbrain. It is, however, noteworthy that in one of my patients in whom a large missile, after passing through the left side of the cerebellum entered the left hemisphere of the brain, producing a complete right hemiplegia probably owing to destruction of the internal capsule, no nystagmus occurred on deviation of the eyes to the right, although characteristic slow, coarse, forcible jerks developed when he fixed an object to his left side. In another patient with a left-sided cerebellar lesion and right homonymous hemianopia due to a gunshot wound no nystagmus developed on deviation of the eyes to the right, though there was typical nystagmus when he looked to the left. This suggests that injury of efferent fibres from the left hemisphere may abolish the quick phase on deviation of the eyes to the right.

Nystagmus can consequently be entirely explained by a defect in the postural tone of the muscles which should maintain the eyes steadily in postures to which they are brought by voluntary effort. And on the regulation and control of this postural tone the cerebellum has evidently an important influence.

DONATIONS AND BEQUESTS.—The late Mrs. Martha A. Waterhouse, of Denton, left £1000 to the Ashton Infirmary to endow a bed in memory of her brother and her two sisters, and £200 to the Denton Sick Nursing Association.—The late Phœbe Worth, of Denton, left £1000 to the Stockport Infirmary and £200 to the Denton Sick Nursing Association.—The late Mr. James Blacklock, of Blackburn, left £2000 to the Blackburn and East Lancashire Royal Infirmary, and £500 each to Blackburn Orphanage, Blackburn Ragged School, Convalescent Home at St. Annes-on-the-Sea.

OBSERVATIONS ON TEN CASES OF DELAYED CONGENITAL SYPHILIS.

BY E. D. SPACKMAN, M.B., B.CH. CAMB.

THE existence of an inherited form of syphilis was first asserted in 1529 by Paracelsus; many writers since then have dealt with this subject, the most noteworthy of all being Hutchinson in the last century; the symptomatology may now be said to be fairly complete. Nearly all published collections of cases of congenital syphilis deal with the disease in babies or in children under 15 years of age; there are very few collections of the true syphilis hereditaria tarda. In the past three years I have treated ten cases of the disease, which appears to deserve more attention than is usually given to it; in a detailed account of congenital syphilis Still[1] dismisses the subject in three lines.

The ten cases about to be described will be found to differ from other collections as regards the age of the patients. Eight of them occurred in full-grown serving soldiers, whose ages were 21, 26, 19, 19, 24, 23, 31, 23 years; the two civilian cases 17 and 16 years old. The average age for all ten cases was 21·9, and for the soldiers alone 23. This age incidence is of interest, because it is high; delayed congenital syphilis is said to manifest itself at the second dentition or at puberty. In the eight cases quoted there were no signs of a syphilitic breakdown until the men were engaged in the strenuous work of war, and were full-grown men of 19 years or more.

Further points of interest in these cases are that four out of eight soldiers were passed into the army as "A 1"—that is, fit for active service on any front—and that six out of the eight were actually serving in France when their syphilitic symptoms appeared, four of them being combatants in the front line. Though the treponema must have been present since birth, would these men have developed their congenital syphilitic symptoms and signs had they been quietly following their normal occupations at home? What was the factor causing the breakdown? These questions are not easy to answer dogmatically, yet they are of importance from the point of view of compensation.

Notes of Cases.

A brief account of five of the "soldier" cases and of the two civilian cases is given below. Arsenic was given intravenously in all cases as novarsenobillon or neokharsivan (914); mercury was given as calomel cream intramuscularly into the buttock in 1 gr. doses.

CASE 1.—Rifle Brigade, aged 21, single; admitted July 3rd, 1919. Suffered from occasional fits. Passed as "A 1." In March, 1919, admitted to hospital for interstitial keratitis. Had six doses of 914, and also mercurial treatment; eye cleared up. Wassermann positive. On admission, typical facies of congenital syphilitic, prominent forehead, frontal bosses, sunken bridge of nose, Hutchinson teeth. Marked interstitial keratitis R. eye, blurred vision.

Treatment.—Atropine and cocaine drops in eye; 3·9 g. 914, 7 gr. Hg. At end of course there was one small ulcer left. Wassermann reaction (W.R.) ++. After two weeks' rest a second course of antisyphilitic treatment resulted in complete disappearance of the keratitis.

CASE 2.—R.A.S.C., aged 26; married, two children. Admitted Sept. 8th, 1919. No history of delicacy as a child. Reported sick July 1st, 1919, because eyes felt weak. On admission, typical facies of congenital syphilitic, Hutchinson teeth, arched palate. Eyes: Photophobia ++, interstitial keratitis of both eyes. W.R. ++.

Treatment.—Local, as in Case 1. General, 3·9 g. 914, 7 gr. Hg. Interstitial keratitis completely cleared up. W.R. ++. Discharged to attend as out-patient for further treatment.

CASE 3.—K.R.R., aged 19, single, admitted June 4th, 1919. Parents, four brothers and two sisters alive and well. Two died as infants, aged 18 and 9 months. Personal history, nil. One month before admission eyes "felt weak." On admission, normal healthy man, Hutchinson teeth. Eyes: L. pupil small and appears fixed; does not react to

[1] A System of Syphilis (D'Arcy Power and Murphy), vol. i., p. 358.

light or accommodation. Photophobia; right corneal ulcer. W.R. ++.

Treatment.—3·9 g. 914, and 7 gr. Hg, followed by one month of pot. iodide, followed by 3·9 g. 914 and 7 gr. Hg. By Nov. 21st, the keratitis had practically cleared up and patient was discharged to depôt. W.R. still positive.

CASE 4.—Tank Corps, aged 23, single, admitted June 11th, 1919. This was the most remarkable case seen. Parents and their four younger children all alive and well. Personal history: General labourer, always quite strong; on active service for three years. In September, 1916, his hair started to get thin; in January, 1919, his eyes got weak and watered. On admission he was unable to distinguish any objects, and was led about by friends. Both eyes: Photophobia ++, acute iritis, marked œdema of conjunctivæ. Right eye, complete film of keratitis, no sight. Left eye, could just distinguish "light" and "dark." Complete absence of hair on scalp, whole head like a billiard ball; hair present in axillæ and pubes. Very deaf; can only hear if shouted at close to drum. Teeth small, irregular, malformed. W.R. ++.

Treatment.—Local to eyes as before; 3·9 g. 914, and 8 gr. Hg, from June 13th to August 8th. W.R. ++ August 11th, by which time patient could see clearly to read and write and had a "walking-out pass" daily. The iritis had cleared up, and there was no sign whatever of interstitial keratitis. A very thin fluffy growth was appearing on the scalp, but not on eyebrows or chin. Mentally patient was one of the sharpest men the writer has met. He was given further antisyphilitic treatment with N.A.B. and mercury; W.R. remained unchanged.

CASE 5.—Labour Corps, aged 31, admitted Sept. 23rd, 1919. Father alive, aged 60, ulcerated legs for 12 years; mother alive; six brothers, all died as infants; five sisters, four died as infants, one living. Personal history: For past three years on active service; quite strong except as regards eyes, which watered and made him report sick. On admission, patient appeared a healthy, well-developed man; Hutchinson teeth, numerous scars of old gummas (?) in skin and bones; patient stammered. Eyes:—Report: "In both eyes there are numerous large patches of choroidal atrophy. In some places the choroid is almost absent, suggesting partial coloboma. Fundus shows numerous patches of pigmentation. The discs are pale and dirty-looking, arteries small, maculæ free from disease." W.R. ++.

Treatment.—This was complicated by the fact that the patient had albumin in his urine, which increased with injections of 914. Antisyphilitic treatment was restricted to iodide of potassium and patient was boarded out of the army.

CASE 6.—Van-boy, aged 16, admitted Feb. 16th, 1921. Father, one brother, and two sisters alive and well; mother undersized and not intelligent. On admission, patient very small for his age, but mentally very sharp. Height 4 feet. Eyes react to light and accommodation and appear normal. Teeth very irregular, malformed, not Hutchinsonian; palate very high and arched. Abdomen enormously distended, pouting umbilicus, dilated abdominal veins. Free fluid ++. Liver also very much enlarged; sixth rib above, lower edge felt 4 inches below costal margin. Spleen enlarged; extends 2 inches below costal margin at tenth rib. W.R. ++. Blood count normal; irregular fever; patient was given an energetic course of intravenous novarsenobillon, 6·15 g. from March 16th to August 18th. During this time there was a most remarkable improvement; the irregular fever ceased, free fluid in abdomen disappeared, and the appalling "pot-belly" became something approaching the normal. Patient wished to resume work.

CASE 7.—Labourer, aged 17, admitted Jan. 18th, 1921. Father alive and well. Mother rather small. No obvious signs of disease. W.R. ++ (mother). Mother states the boy was always delicate, but there is no definite history of syphilis. In August, 1920, patient was admitted to the infirmary for an operation on tuberculous glands in left anterior triangle of neck, and a week after the operation the "right eyelid dropped" and patient saw double in raising lid. On admission under care of the eye specialist, to see if anything could be done for the ptosis, patient's general condition was very good, though small for his age; "walks about normally and talks rationally to other patients." Examination of the right eye showed a condition of total ophthalmoplegia; pupil dilated, vision defective, optic disc showing partial optic atrophy. No operation practicable. A few days after admission patient developed a sudden hemiplegia, and his condition on the 30th was as follows:—Cranial nerves (R., right side; L., left side): 1st, R. and L., unaffected. 2nd, R., partial optic atrophy; L., normal. 3rd, 4th, 6th, R., complete paralysis, no movement of eyeball; L., normal. 5th, R., unaffected. 7th, R., paralysis; L., normal. 8th, R., normal hearing; L., very deaf. 9th, 10th, 11th, 12th, R., unaffected. Cornea: R., small patch of interstitial keratitis middle of cornea; L., nil. Arms: tendon-jerks, R., biceps and triceps normal; L., exaggerated. Grip, R., normal, L., very weak. Wasting, R., nil; L., nil. Legs: Knee-jerks, R., normal; L., exaggerated. Ankle-clonus, R., not present; L., present. Plantar response, R., flexor; L., extensor. Abdominal reflex: R., present; L., absent. W.R. ++++. Patient was given gradually increasing doses of iodide of potassium; his general condition seemed to improve, and the interstitial keratitis disappeared, but on March 31st there was some serious cerebral pathological occurrence, and the patient became imbecile; this was accompanied by incontinence of urine and fæces, and from that day onwards he has never spoken an intelligent word or shown any normal interest in life. He has had intravenous injections of 914, and also ethyl mercury, a new compound, by the mouth, but none of these means had any effect. He appears now to suffer pain at times (Sept. 13th), crying out and turning over; his general state seems one of unintelligent happiness, a broad smile being the only answer to every question put. He is unable to feed himself, and is incontinent; the outlook seems hopeless (general paralysis).

Summary.

If this small group of cases is carefully considered it will be seen: (1) That delayed congenital syphilis is an unsatisfactory disease to cure. (2) That 914 is beneficial for clearing up local lesions speedily. (3) That it is impossible by treatment to produce in a congenital syphilitic person a permanent negative W.R. (4) That every congenital syphilitic will have a positive W.R. before treatment, and will usually have it for life. (5) That there is no age limit at which an untreated congenital syphilitic can be told he is safe from a relapse. (6) That arduous work with mental strain—i.e., war—may cause an apparently healthy man to break down and show only too clearly a congenital syphilitic taint.

As regard (1), it should be the aim of the medical profession to prevent, in the congenital syphilitic, a breakdown as a *delayed* congenital syphilitic, by treating every case arising in infants in the most thorough manner possible for two years, so that the disease may be stamped out at its origin. As regards (3) and (4), the inability to change a positive into a negative W.R. may not be of very great importance. All these soldiers had led useful healthy lives until they broke down, in spite of having had positive W.R. since birth; two were married and both had healthy children. As regards (6), in future wars obvious congenital syphilitics should not be passed A1, however fit they may seem; they should be given light non-combatant work if possible.

Conclusion.

1. Syphilis hereditaris tarda is not a rare disease, and should be diagnosed more frequently than it is in adult life. Aortitis or aneurysms may have a congenital origin and not be the result of acquired syphilis.

2. All cases of syphilis, congenital or acquired, should be placed in the hands of those competent to treat them, and if any permanent benefit is to be expected such treatment must be intensive and thorough.

3. Disease of the eye, in the form of interstitial keratitis, iritis, or choroiditis is often one of the earliest signs to appear, and is of great importance in early diagnosis. Still[2] states that "out of 100 consecutive cases of congenital syphilis at least 23 per cent. showed syphilitic disease of the eye, and the percentage would probably have been higher had an ophthalmoscopic examination been made in all cases."

[2] Ibid., p. 308.

CHILDREN'S COUNTRY HOLIDAY FUND.—A special appeal on behalf of this Fund is being made by Mr. F. R. Anderton, chairman of the London County Council. Last year it was not possible to send away more than a comparatively small number of children attending the London elementary schools, and special efforts are therefore called for this year to increase the number. The object of the Fund will commend itself to all medical men, and many will have noticed a marked improvement in health and spirits on the children's return. Donations should be sent to the Secretary, Children's Country Holidays Fund, 18, Buckingham-street, Strand, W.C.2.

SOME OBSERVATIONS ON "TENNIS ELBOW."

BY FRANK ROMER, M.R.C.S. ENG.

THE common form of disability popularly termed "tennis elbow" is frequently seen at this time of year. Considerable experience in dealing with this class of injury has led me to believe that there are three distinct stages or types, which may exist either separately or in conjunction.

The first and in my experience the commonest variety is where a condition analogous to teno-synovitis is set up in the muscles round the elbow-joint. These muscles lacking a tendon and its investing sheath become affected with a traumatic fibrositis, which is occasioned by the repeated jerks of the muscles at their origin on the condyles. The external condyle with its muscular attachments is the most usual situation for "tennis elbow," whilst the muscle mostly at fault would appear to be the supinator longus, which becomes affected by such actions as back-handed play at tennis, whilst sabre-fencing, fly-fishing, and golf are also common factors.

Probable Cause of the Condition.

I believe that the universal use of a large-handled racquet in lawn-tennis without consideration of the size of the player's hand has much to do in bringing about this common ailment. The strain on the muscles by a handle too large for the grasp is as productive of over-strained muscles as playing with too heavy a racquet. When the pain is experienced on the inner condyle and corresponding muscles, approach shots at golf, or playing with a "cut" at tennis, are actions likely to have caused the trouble.

In the foregoing condition the faulty muscles will be found crampy, indurated, and painful on pressure. In addition to the muscular lesion the second type may also exist and a tender spot is found on the condyle itself, corresponding to some portion of the bone where the faulty muscle takes its origin. The pain in this variety is described as being of a burning character, as if the bone had been bruised. This pain, though accentuated by movement or pressure, is often independent and is suggestive of a minute tear of some muscle fibre from the periosteum.

The third type, which may be met with either alone or in conjunction with the other two, is where a synovitis is set up in the radio-ulnar joint. There is a possibility, in course of time, of arthritic changes taking place in this joint.

Three Stages of "Tennis Elbow."

The three stages of tennis elbow would, therefore, appear to be: (1) Muscular—traumatic fibrositis; (2) traumatic subacute periostitis; (3) arthritis of the radio-ulnar joint. Of these, the first is oftenest seen separately, the second and third being more usually found in combination.

In every type practically, with an occasional exception in the first, the onset of tennis elbow is gradual. In the simple muscular type pain can usually be elicited by pressure over the affected area, but otherwise it is only noticed on a movement which calls into action the muscles at fault. Patients thus affected notice that they can lift or pull heavy weights from the ground with perfect comfort, whilst any small action such as pouring out tea, tying a bow-tie, brushing the teeth, or similar movements are exquisitely painful. In this condition treatment is usually successful and consists in intelligent massage of the affected muscle in order to supple down its fibrotic condition. It may be noticed that after a few days, as one muscle responds to treatment and becomes pliant and painless, the discomfort and induration will appear to spread to neighbouring muscles. For instance, the supinator longus has yielded to treatment when the pain will be experienced in the extensor communis or extensor carpi radialis. This is probably due to the greater pain masking the lesser.

During the massage, which should be daily for an average period of ten days, it is advisable for the patient to abstain from playing those games which caused the trouble. The full effects of the massage, however, may not be appreciated by the patient till some days have elapsed. The muscles having been suppled down by massage, the forearm should be strapped with the double object of supporting the muscle and at the same time checking the pull at its origin on the humerus. The method I adopt is as follows: Take two strips of adhesive plaster about 1¼ inches in width. Apply the first so as to encircle the forearm about the juncture of the upper and middle third. The second piece being folded on itself, a semicircle is cut from it. This is adjusted so as to overlap the first by a small margin, whilst the opening made by the removal of the semicircle enables the support to cover the forearm completely up to the elbow-joint without interfering with flexion. When putting the plaster on, see that the elbow is semiflexed and supinated with the muscles of the forearm relaxed. With the strapping properly adjusted, play once more can be resumed, and although to commence with a certain amount of discomfort may be experienced, the condition will not be aggravated and soundness will shortly be established.

It is as well for the patient on resuming play to avoid as much as possible for the first few games those shots which originated the trouble. Some faulty method of play is too often the reason why undue strain is put upon some group of muscles, such as "flicking" from the elbow in back-hand strokes, instead of "coming through" with the whole arm, and it is as well to warn patients that they should reconsider their technique. In the second type, where an acutely tender spot exists on the condyle, a small swelling or thickening is often to be detected in the early stages, which will often entirely clear up with skilled massage and strapping. Massage will often bring to the surface a small patch of bruising over the sensitive area. Where, however, massage and radiant heat fail to cause improvement, counter-irritation by means of a small blister over the sensitive spot will sometimes be found useful, or the administration of iodine by ionisation. When the radio-ulnar articulation is affected, swelling and pain over the head of the radius will be found, and it is possible that some fraying of the orbicular ligament has been sustained. Massage, combined with radiant heat and subsequent strapping, often gives excellent results, provided the patient, taking his trouble in time, has sought early advice. In this condition, however, especially if arthritic changes are commencing, recovery seems very slow, and ionisation would seem to hold out the best prospects. In the two latter varieties abstention from such games as proved the exciting cause must be far longer than in the purely muscular condition.

In the third type, where the radio-ulnar articulation is implicated, recurrent strain or jarring of the joint would appear to have been sustained; the use of a too heavy racquet, or of heavy shears in pruning trees, have been noted as causes, together with the habit of "taking" too much ground in playing golf.

Where a patient has habitually neglected "tennis elbow," satisfying himself in the way of treatment by occasional periods of rest from his particular game, it not infrequently happens that those muscles of the forearm having their origin on the humerus become so contracted that complete extension of the elbow-joint is rendered defective from the pain produced. When this condition fails to respond to simple measures such as massage and heat, forcible stretching under an anæsthetic may be needed before recovery takes place.

Seymour-street, W.

H.M. the Queen and H.M. the Queen of Italy have been graciously pleased to accept a copy of a book on "Artificial Limbs and Amputation Stumps," by Mr. Muirhead Little, surgeon to the Convalescent Auxiliary Hospital at Roehampton.

SOME OBSERVATIONS ON THE DIASTASE REACTION OF THE URINE.

BY ARTHUR F. SLADDEN, D.M., B.CH. OXF.,
DIRECTOR OF BECK LABORATORY, SWANSEA GENERAL HOSPITAL.

THE measurement of the diastatic activity of body fluids, particularly of the urine, has been applied to clinical purposes for about ten years. It was originally introduced by Wohlgemuth [1] as a means of diagnosis in pancreatic disease; later (1913) it was shown by the late Dr. Dudley Corbett [2] that whereas in pancreatitis the urinary diastase tended to be increased above normal, conversely in presence of renal lesions the excretion of diastase in the urine was usually diminished. The majority of workers on this subject have adopted Wohlgemuth's technique, of which descriptions are now available in several text-books. After considerable experience of the method, I wish to advocate an improvement in this technique, simple but particularly important when renal efficiency is in question.

Wohlgemuth, for reasons which will be indicated later, laid no stress on the need for adjusting the acidity of the urine to a standard before testing. Corbett, in his study of the subject, stated that variations in the reaction of the urine were not of importance, and Mackenzie Wallis [3] apparently concurs in this opinion. I, however, cannot agree that the hydrogen-ion concentration (pH) is a negligible factor in the technique, especially when the technique is applied to measure quantities of diastase *at the lower levels*, as in cases of renal inadequacy. The optimum pH for the diastatic enzyme in presence of chloride is given by Walpole [4] as 6·7. Cole in his text-book notes the fact that adjustment of pH in the determination of diastase is desirable, nevertheless the usual Wohlgemuth procedure without this precaution is described for use in routine work.

An accurate adjustment of the hydrogen-ion concentration in all the tubes of the test would require (1) adjustment of urine pH to 6·7 by means of Cole's comparator, and (2) addition of suitable amount of phosphate buffer mixture at pH 6·7 with the starch solution to each tube of test. For practical purposes, without employment of the comparator method, a sufficient degree of accuracy is obtained if the urine be titrated with N/10 NaOH in the presence of phenol red as indicator, the first appearance of a faint pink tinge being taken as end-point corresponding to a pH 6·7. With alkaline urines titration back with N/10 HCl may be necessary. With regard to (2), the addition of phosphate buffer mixture tends to obscure the reading of final results, so that although by this system the diastase is acting under optimal conditions in every tube of the series, and shows a higher activity than when determined without adjustment of pH, nevertheless the greater difficulty in deciding end-points introduces an undesirable complication. In practice, therefore, one may omit (2) while retaining (1), simplifying the adjustment if desired.

Of course, when the urine has a high level of diastatic activity the importance of the pH adjustment diminishes, as the relative quantity of urine in the end-point tube becomes so small. This would usually be so in pancreatic cases, and forms the justification of Wohlgemuth in his neglect of the pH factor of the urine when using this test for evidence of pancreatic disease. When, however, one is concerned in measuring diastase at the lower ranges, say from 15 units downwards, this factor assumes a real significance, which is accentuated according as the hydrogen-ion concentration of the urine is further removed from the optimum figure, pH 6·7.

Influence of Increased Hydrogen-Ion Concentration on the Reaction.

The average pH for normal urine is given as 6; not infrequently it may be considerably further along the acid direction, and with pathological urines may reach pH 4 or even lower. Palmer and Henderson [5] have shown that in certain types of nephritis the hydrogen-ion concentration of the urine tends to be especially high (with, of course, correspondingly low pH exponent figure). The influence of such increased hydrogen-ion concentration is indicated by the following determinations in which the Wohlgemuth test was carried out: (*a*) with ordinary urine, (*b*) with urine adjusted approximately to pH 6·7 as described, using phenol red as indicator. The amounts of N/10 alkali required to bring each sample of urine to pH 6·7 is given in Table I.

TABLE I.

Case.	Condition.	N/10 alkali per 10 c.cm.	Diastase units.	
			Urine at pH 6·7	Urine uncorrected.
A	Healthy person	1·3	30	10
B	Colon bacilluria	1·5	8	5
C	Nephritis, ? staphylococcal	?	13	2
D	Phosphaturia, no other signs, neurasthenic	Very acid urines	80	80
E	Toxæmia of pregnancy at early stage		35	12
F	Pyonephrosis, unilateral	?	(pH 7·1) 25	(pH 6·0) 25
G	Pyelonephritis	2·6	8	6
H	Toxæmia of pregnancy*	1·4	66	62
I	Septicæmia, renal infarct	0·8	12	6
J	Healthy person	5·0	24	4
K	Nephritis	1·6	4	1
L	Eclampsia	6·8	80	16

* Case E one day later.

It is evident that the diastatic units obtained from the non-adjusted urines gave, in at least half the cases, quite misleading information; whereas the units found in "corrected" urines had, for the most part, a significance which was of diagnostic value. For example, the renal efficiency in Case C was not so impaired as the "uncorrected" unit value would suggest; in Case J there was no reason to doubt the renal adequacy, though the unit value of 4 would have suggested otherwise; and in Case L the evidence for toxæmia would have been missed.

A few experiments were made by testing urines adjusted to various pH values by means of indicators, all diastase estimations on each urine being carried out in parallel. The existence of an optimum point, and the necessity for working to this point if uniform results are to be obtained, is clearly shown in Table II. The pH values here are to be taken as only approximate, but sufficiently so for purposes of the experiment.

TABLE II.

Urine.	pH values.										
	3·5	4·0	5·0	5·9	6·5	6·7	7·0	7·5	8·0	8·2	8·3
A (d.u.)	—	—	4	10	—	30	—	—	—	15	—
B (d.u.)	80	—	—	—	—	—	80	—	—	90	—
C (d.u.)	—	1·0	1·5	—	4·0	—	6·0	5·0	2·5	—	1·0

(d.u.) = diastase units.
— = no test made at the corresponding pH value.

For practical clinical purposes an estimation of the diastatic power which is within 20 per cent. of the true value is usually sufficiently accurate, but when no adjustment to optimum pH is made, an error amounting to several hundreds per cent. may easily occur and in this event the test may yield a most misleading indication. Some nephritic urines have an unusually high concentration of hydrogen ions, and, if tested without adjustment, may give very low diastase values—due, in part, not to excessively damaged renal tissue, but to this other factor. It is probable that the true (optimal) diastase value of even a nephritic urine is seldom below 4 units, and if with this method of adjustment a value below 4 is found the indication is correspondingly grave.

As regards the diagnosis of toxæmias of pregnancy, failure to adjust the pH of the urine may lead, as in Cases E and L (Table I.), to error which entirely vitiates the value of the test. It is consequently suggested that this adjustment to standard pH value is essential if the test is to give consistent and useful results.

Another point of importance in the utilisation of the diastase test is the need for correlating the unit value found with the urinary output in a 24-hour period, just as one has more regard for the daily output of urea or of glucose than for an isolated percentage estimation. Both these factors tend to increase the range and utility of the test, and at the same time they hardly involve any extra time or trouble in performance.

Features of the Technique.

It is hardly necessary at this stage to give a full account of the technique of the test; this is available in text-books to which reference is made. The following features may, however, be noted: 1. Adjustment of urine to pH 6·7, as already described. 2. Use of a 1 : 20 dilution of stock starch solution (2 per cent. starch in 10 per cent. NaCl solution), as advocated by Mackenzie Wallis and by Cole. 3. Use of distilled water for all dilutions. 4. When possible use of a sample from a 24-hour collection of urine, and the consideration of the total day's output in assessing the result.

A short survey of tests made in nearly 100 cases recently will serve to show how far the method has practical application and utility and will indicate also its limitations. The tests are grouped here according to unit values found, and the clinical nature of the cases examined is noted. D.u. = diastase units.

Units 5 to 10: 21 estimations.

	D.u.		D.u.
10, Nephritis, average ..	4·7	1, Pancreatic achylia ..	2
4, Pyelonephritis, average	6·7	1, Carcinoma of pancreas	4
1, Prostatic enlargement	5·0	1, Diabetes	5
1, Colon bacilluria ..	8	1, Toxæmia of pregnancy	6
		1, Normal person ..	9

The toxæmia case four days later had 45 units and was definitely acidotic.

Units 10 to 15: 16 estimations.

	D.u.		D.u.
5, Nephritis, average ..	11	1, Pancreatic tumour ..	10
6, Pyelitis or pyelonephritis, average ..	11	1, Biliary cirrhosis ..	10
1, Cerebral tumour ..	10	1, Renal infarction ..	12
		1, Diabetes	13

Units 15 to 20: 6 estimations.

	D.u.		D.u.
2, Pyelitis or pyelonephritis, average ..	18	1, Aplastic anæmia (with pregnancy) ..	16
1, Chronic nephritis ..	16	1, Normal person	16
1, Cystitis (staphylococcal)	18		

Units 20 to 25: 14 estimations.

	D.u.		D.u.
3, Normal persons, average	22	1, Acute appendicitis ..	25
2, Cystitis, average ..	20	1, Ulcerative colitis ..	20
2, Pyelonephritis, average	20	1, Cardiac dropsy ..	25
1, Nephritis	25	1, Hyperpituitary ..	24
1, Post-partum cystitis ..	24	1, Diabetes	20

Units 30 to 40: 5 estimations.

	D.u.		D.u.
2, Pyelonephritis, average	30	1, Diabetes	33
1, ? pancreatitis	30	1, Arterio-sclerosis ..	30

Units 40 to 60: 14 estimations.

	D.u.		D.u.
3, Pyelonephritis, average	43	1, Pyrexia with acidosis	40
2, Cystitis, average ..	45	1, Biliary cirrhosis (? with pancreatitis)	40
2, Toxæmia of pregnancy, average	45	1, Carcinoma of pylorus (with glycosuria) ..	50
1, Nephritis	50		
1, Nephritis, puerperal ..	40		

Units 60 or above: 11 estimations.

	D.u.		D.u.
6, Toxæmia of pregnancy, average	80	2, Pyelitis of pregnancy	666 & 60
2, Glycosuria, slight, average	90	1, Pyelonephritis	80
		1, Phosphaturia	90

Inorganic phosphates have previously been observed by Löb[6] to cause increases in diastatic output.

A comparison of these findings with those made by other workers using non-adjusted urine shows, as would be expected, higher average unit values. By this standardised system the normal range of diastase values lies between 10 and 40, and it is probable that if the total daily output of diastase were ascertained as a routine the somewhat extensive width of the normal range would be narrowed.

Values of 6 or less have not been found except in presence of renal disease; in fact, any urine having less than 10 units, unless the day's total volume be unusually high, is likely to have come from a "renal" subject.

Effects of Various Conditions on Diastase Output.

Cystitis, pyelitis, and pyelonephritis of definite bacterial causation seem to produce little or no effect on the diastase output. In the event of a nephritis of this kind showing progressively less diastase in a series of estimations the indication is serious. The increase of diastase in the recovery stage of a case of acute nephritis is frequently very striking from the way in which it reflects the clinical improvement.

Cases of pancreatitis or other lesions of this gland have not been numerous enough to allow many estimations. Three cases, however, are noteworthy as showing subnormal diastase values—two tumours of pancreas had respectively 4 and 10 units, and a case of pancreatic achylia, very fully investigated, had 2 units only. Nevertheless, it remains probable that in inflammatory conditions of the pancreas a high diastatic value is the rule, and in any undoubted "pancreas" case which has a *low* D. excretion, tumour or atrophy may fairly be suspected rather than inflammation. It is suggestive that many diabetics, in spite of an unraised unit value, have a very definite increase in total units excreted in 24 hours.

For aiding in the differentiation of toxæmia of pregnancy from pyelitis or nephritis in pregnancy, the test is most valuable. In the milder cases of toxæmia the changes in diastase excretion afford an index to the progress of the condition, and when surgical intervention is in question a survey of the daily excretion of diastase yields important aid in determining the course of action. Where evacuation of the uterus has to be done a sharp fall in diastase units occurs after about two days.

The test has occasionally been applied to ureteric specimens with a view to estimating the relative efficiency of either kidney; no important degree of difference between the two samples was found, but this is probably associated with the frequent observations that bacterial infections in the kidneys, except when very profound, do not affect the diastatic outflow materially. The presence of methylene-blue in such samples does not interfere to any great extent with the action of diastase.

Summary.

1. Urines tested for diastatic activity should be brought to a standard hydrogen-ion concentration, preferably the optimum, pH 6·7.

2. In assessing results the total day's excretion, rather than the unit value alone, should be considered.

3. Low diastase values definitely indicate nephritis as a rule; but not all nephritics (and notably pyelonephritics) have lowered values.

4. Not all types of pancreatic lesion cause excessive diastase output.

5. The test is of much value in dealing with toxæmias of pregnancy and allied conditions.

The writer is indebted to his fellow-members of the staff of Swansea General Hospital for free access to their patients, on whom for the most part these estimations were performed, and particularly desires to acknowledge the assistance rendered in the making of estimations by his colleagues of the Beck Laboratory, Dr. Iris Fox and Dr. Mavis Grant.

References.—For usual technique of the test:—Cole, S. W.: Practical Physiological Chemistry, p. 362. Macican, H.: Diagnosis and Treatment of Renal Disease, p. 59. 1. Wohlgemuth: Berlin. klin. Woch., 1910, xxxix., 302, 324. 2. Corbett, D.: Quarterly Jour. of Medicine, 1912–13, vi., 351. 3. Wallis, R. L. M.: St. Bartholomew's Hosp. Journal, May, 1921. 4. Walpole, G. S.: Biochem. Journal, viii., 6. 5. Palmer, W., and Henderson: Jour. of Biol. Chem., xxi., p. 37 (quoted from Cole). 6. Löb: Biochem. Zeitschrift, 1912, xlvi., 125.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

A CASE OF "CARCINOID TUMOUR" OF A MECKEL'S DIVERTICULUM.

BY J. A. BRAXTON HICKS, M.D. LOND., D.P.H. CAMB., M.R.C.P. LOND.,
PATHOLOGIST TO WESTMINSTER HOSPITAL;
AND
S. KADINSKY, M.R.C.S., L.R.C.P. LOND.,
SURGICAL REGISTRAR TO THE HOSPITAL.

THE reason for reporting this case is, that, as far as the writers can ascertain, no tumour of this nature has been recorded up to date as occurring in a Meckel's diverticulum.

Description of Case (S. KADINSKY).

The patient was a boy, 12 years of age, admitted to the Westminster Hospital complaining of sickness and abdominal pain. Seven weeks before admission he had had an attack of abdominal pain, vomiting, and diarrhœa, lasting 24 hours. The pain recurred about once a week for the next four weeks, and the attack lasted for an hour. After this attacks became more frequent and were accompanied by vomiting.

On admission he complained of pain in the region of the umbilicus, the right rectus was rigid, the abdomen tender, tongue coated, temp. 98° F., pulse 120, and nothing abnormal was felt per rectum. A diagnosis of appendicitis was made, and the patient operated on the same day.

At the operation (by S. K.) the appendix, which was retro-cæcal, was found quite normal. A small amount of pus escaped in the region of the cæcum, which was œdematous and thickened, from the adherence to it of the distal end of an acutely inflamed Meckel's diverticulum. The diverticulum was 3 inches long, kinked and perforated; pus was present in the pelvis. The paracæcal glands were enlarged. The diverticulum, appendix, and one gland were removed and the peritoneum drained. The patient made a good recovery, except for a transient attack of erysipelas on the fifteenth day after the operation.

I wish to thank Mr. Rock Carling for permission to publish the surgical notes of the case and for the drawing. The patient reported in March, 1922, in perfect health.

Notes on the Pathology of the Meckel's Diverticulum (J. A. B. HICKS).

The gross macroscopic appearance is that of an "appendix" with a thickened mucosa and submucosa. Microscopically the appearances are well shown by reference to the accompanying illustration, a semi-diagrammatic drawing of the condition by my surgical colleague Mr. Rock Carling.

The lumen is lined with ordinary gland tissue (Lieberkuhn's), though perhaps the mucus cells are rather more columnar than usual. In the submucosa, however, is a strange mass of glandular tissue, somewhat resembling shrunken "pancreatic tissue," though the arrangement is not pancreatic. This submucosal glandular tissue has an appearance of "splendid isolation" about it, for it does not resemble any tissue in its neighbourhood, and is apparently not connected by any gland, duct, or structure with the mucosa beneath which it is situated. It does not penetrate into the deeper fibro-muscular structures external to it. Tumours of the small intestine are comparatively rare. Thus Brill (quoted in Ewing, "Neoplastic Diseases"[1]) collected 3563 malignant tumours of the intestine, and found only 39 cases in the *small* intestine (1·1 per cent.). Growths of Meckel's diverticulum are apparently very rare. Symmers[2] describes three cases of "malignant myomata" of Meckel's diverticulum, but the tumour described in this paper has nothing in common with these. Lubarsch[3] has described tumours identical with the one now described under the heading of "carcinoid tumours" found in the jejunum, ileum, and appendix, and he classifies them as occurring under three groups: (1) Those resembling pancreatic tissue; (2) resembling intestinal mucosa; and (3) those containing Brunner's glands. The case here reported comes under Group (1).

In their simplest form these growths may be regarded as developmental anomalies and glandular displacements. Thus the "pancreatic tissue" appearance may merely be resting mucous gland tissue (as may be seen in a salivary gland). Krompecker[4] describes some somewhat similar types of tumours as occurring

Semi-diagrammatic drawing of section of Meckel's diverticulum with carcinoid tumour.

beneath the skin, under the heading of "basal cell carcinoma," but I do not think that any relationship between them can be claimed. I have personally encountered two examples of Lubarsch's "carcinoid tumours" of the appendix, but this is, as far as I can ascertain, the only one yet described in the literature as occurring in a Meckel's diverticulum.

The absence of any metastasis in the gland that was examined, and the experience of similar tumours of the appendix, make the prognosis in this case quite favourable.

Bibliography.—Intestinal growths of similar type: 1. Ewing: Neoplastic Diseases. 2. Symmers: Annals of Surg., Philadelphia, 1919. 3. Lubarsch: Virchow's Archiv, iii., p. 280. 4. Krompecker: Ziegler's Beiträge zur Pathol. Anatom., Jena, 1919. Other references.—C. Griffiths: Dis. of Meckel's Divertic., Trans. Amer. Pediat. Soc., 1914. Burnham: Johns Hopkins Hosp. Bull., 1904. Cadenat: Bull. and Mém. Soc. Chirurg., Paris, 1921. Adams, J. E.: Proc. Roy. Soc. Med., 1920.

A CASE OF ECLAMPSIA IN THE THIRTY-FOURTH WEEK TREATED BY CÆSAREAN SECTION; MOTHER AND CHILD LIVING.

BY AMBROSE W. OWEN, M.D., B.S. LOND.,
HON. SURGEON, ABERDARE AND DISTRICT GENERAL HOSPITAL.

THIS case is, I think, of interest at a time when there is much talk about the "mad rage for Cæsarean section." It tends to show that the 30 per cent. mortality for Cæsarean section performed for eclampsia for the 10 years 1911–20—many of the cases being in extremis at the time of operation—could undoubtedly be greatly reduced if prompter action were taken. The interval between the first fit and the operation in this case was just three and a half hours. The delay is explained by the inconvenience of the hour.

I first saw Mrs. F. W., a primipara, aged 26, at 1.15 A.M. on May 10th, 1921. She had had a fit 15 minutes previously, and was unconscious, cyanosed, and breathing stertorously. Her mother informed me she had never known her have a fit before, that she had complained of a severe headache on the previous day, and that her legs and eyes had been swollen "about a fortnight, but they had thought this a natural thing and had not bothered me on that account." The patient was 34 weeks pregnant.

A few minutes after my arrival she had a very severe and typical eclamptic fit. I immediately injected ¼ gr. of morphine. The hard, brawny œdema all over her body was so extreme I had difficulty in recognising her as the girl I had known before her marriage. The temperature

was 103·6° F., pulse 136, and blood pressure very high. I therefore gave a gloomy prognosis, and as there were no signs of labour having started, advised Cæsarean section. She was accordingly admitted to the Aberdare General Hospital at 3.30 A.M. Another severe fit occurred at 3.45.

Operation.—At 4.35 A.M. I performed Cæsarean section by the classical method, assisted by my colleagues Drs. I. and H. Banks. Dr. J. C. Ogilvie gave open ether. The operation was uneventful, the patient not sterilised, and the child was successfully resuscitated.

Little immediate improvement was noticed after putting the patient back to bed. The fits occurred with great severity every hour until 11.30 the same evening. They then stopped, and she had no more subsequently. Consciousness was at no time regained between the fits. The temperature at 2 P.M. the same day was 104·4°, pulse 136, and blood pressure very high. The temperature remained at 104° until 6 A.M. the following day, but came down with a sudden drop to 99·4° four hours later, and never went above 99·8° subsequently. Three-eighths of a grain of morphine were given at 2 P.M. and one-quarter at 10 P.M. on the day of operation, making a total of nine-eighths in the 24 hours. No other sedative, with the exception of the ether at the operation and whiffs of ether after, was given. Two drops of croton oil were placed on the tongue and 4 drachms of glycerine injected into the rectum on the evening of operation.

After-history.—On the 11th no fits. Bowels well open 11 A.M. Skin acting well. Passed 8 oz. of urine, which is loaded with albumin. Blood pressure still high. Unconscious most of the day but semi-conscious towards the evening. On the 12th patient conscious and talking; no headache; sight perfect; no recollection of her illness. Pulse of quite normal volume.

The patient got rapidly well, the urine was free of albumin on May 16th, and she was discharged from hospital with her baby on June 9th.

A CASE OF CARCINOMA OF THE CERVIX IN A YOUNG WOMAN FOLLOWING GONORRHŒA.[1]

BY S. GORDON LUKER, M.D. CAMB., F.R.C.S. EDIN.

THE following notes refer to a young II-para, aged 28, in whom carcinoma of the cervix followed an attack of gonorrhœa contracted five months previously. The occurrence of a carcinomatous growth during local treatment of the cervical canal for gonococcal cervicitis seems to support the "irritation" theory, in that in this case there was the discharge and also the repeated application of antiseptics.

A woman, II-para (younger 2½), aged 28, was sent to the venereal department, London Hospital, on August 27th, 1921. She was examined by Dr. Malcolm Simpson, who noted a slight white discharge and a definite laceration of the cervix. Though there was very little clinical appearance of gonorrhœa, gonococci were found by the bacteriological department both in the urethra and cervix. The history of the discharge dated from six weeks previously. Local routine treatment was carried out until January, 1922, including many applications of silver nitrate solution. Polypoid warts were noted in November, and as they did not disappear the patient was sent to me for examination at the end of January. She was admitted to the London Hospital under my care on Feb. 26th, 1922.

Examination under an anæsthetic showed an irregular ulceration at the external os; the edge was undermined and bluish. There was no evidence of infiltration of the cellular tissue round the cervix.

I decided to do a partial amputation of the cervix; during the performance of this I found the tissues of the cervix distinctly friable, and the diagnosis of carcinoma was a moral certainty. This was confirmed by microscopical examination which showed a "squamous-celled carcinoma, with much inflammation."

A few days later Wertheim's hysterectomy was performed after preliminary radiation by inserting 50 mg. of radium into the cervical canal for 36 hours. There appeared to be no glandular involvement, and the cellular tissue was not infiltrated. The patient made a good recovery.

The pathological report of the specimen notes: (1) Chronic purulent ulceration and early squamous-celled carcinoma of the vaginal portion of the cervix; (2) chronic purulent ulcerative cervicitis of cervix uteri.

Since the inauguration of the venereal department in 1915 no other case of a similar nature has occurred.

[1] An account read at the Obstetric and Gynæcological Section of the Royal Society of Medicine, June 1st, 1922.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF UROLOGY.

A MEETING of this section of the Royal Society of Medicine was held on June 29th, with Sir THOMAS HORDER, the President, in the chair.

Report of the Special Committee of the Section upon Renal Function.

The PRESIDENT read this report which may be summarised as follows:—

Of the eighteen speakers on this subject, eleven were surgeons, two physicians, and five spoke from the point of view of the laboratory worker. The tests were considered mainly in connexion with (1) cases of enlarged prostate; (2) cases of disease of the upper urinary tract. The actual tests considered were: (1) urea-concentration test; (2) the estimation of urea in the blood; (3) the estimation of urea in the urine; (4) the estimation of sugar in the urine and in the blood; (5) the estimation of diastase in the urine and in the blood; (6) cryoscopic tests of the urine and of the blood; (7) pyelography; and (8) dye excretion by the kidney.

Of these, the tests (1), (2), (7), and (8) were generally considered to be the most helpful. The committee thought that the quantitative estimation of urea in the urine, which was directly affected by the food, was unreliable.

Urea-concentration Test.

As regards the urea-concentration test, a useful standard method of performing this was the following. (1) All fluid is withheld from the patient for six hours before the administration of (2) 15 g. of urea in 100 c.cm. (this quantity might advisedly be increased in certain cases); (3) the volume of urine passed should be measured hourly and the concentration of the urea in each of the samples determined. If polyuria resulted allowance should be made for this, and the tests should be repeated. Urea concentration varied with the diet. The type of diet should therefore be considered in interpreting results. This test was not invalidated by the presence of blood or protein in the urine.

The conclusions following the applications of this test were: (1) if the urea in the urine of the first, second, or third hours exceeded 2·5 per cent. the kidneys were functioning adequately; (2) if the percentage lay between 2 and 2·5 per cent. the kidneys were probably acting adequately, but an additional examination of the blood urea was advisable; (3) if the percentage was less than 2 per cent. the kidneys were not functioning properly; and (4) normal blood urea on hospital diet was 15–40 mg. per 100 c.cm. If the concentration of urea were above 2 per cent. the blood urea would be less than 40 mg.

Blood-urea Test.

Prof. MacLean considered from his experience of 14,000 cases that no single test was of much value. The normal blood urea he found varied according to age, from 20 mg. in young people to 50 mg. per 100 c.cm. in old people. With regard to the urea-concentration test, Prof. MacLean's conclusions were: (1) that this test should be considered in conjunction with the blood-urea test; (2) the maximum concentration occurred during the second hour—if over 2 per cent. the kidneys were probably efficient, if in the region of 1 per cent. the kidneys were not efficient; and (3) the quantity of urine passed should not exceed 130 c.cm. He further suggested a factor: mg. per 100 c.cm. of urea in the blood, which in health varied between 60 and 80. When the renal condition gave satisfactory tests, Prof. MacLean stated that no post-operative death from renal insufficiency had occurred, although there had been deaths from septicæmia, peritonitis, and pneumonia which, as the President remarked, were themselves frequently indicative, although indirectly, of renal insufficiency.

Diastase in Urine and in the Blood.

Prof. MacLean and Dr. Marrack considered the diastase content of the urine to be unreliable, and Dr. Harrison stated that urinary diastase gave no measure of the diastase in the blood. Mr. Girling Ball and Dr. Mackenzie Wallis attached some value to the estimation of diastase, but would prefer the estimation of urea in the blood and the analysis of the relation of the sugar in the blood to the sugar in the urine if they were limited to two tests. Mr. Swift Joly considered the total amount of urea excreted in the three hours should be taken count of in conjunction with the urea-concentration test on the second hour specimen. Dr. Geoffrey Evans and Mr. Kenneth Walker both urged strongly that in the presence of existing sepsis satisfactory

renal function tests did not exclude risk to life following upon operation. Dr. Macalpine and Mr. Ogier Ward raised the question of the amount of kidney substance compatible with life, and instanced Rose Bradford's experiments in which it was found two-thirds of the total kidney substance in animals might be removed without causing renal inefficiency, whereas the removal of three-quarters of the kidney substance caused death with excess of urea in the blood. While it would appear that considerable reduction of renal substance was compatible with good renal function, the committee felt that the occurrence of sepsis after operation might so damage the remaining kidney substance as to put the patient in grave danger.

Dyes.

The dyes principally favoured were: (1) Phenol sulphonphthalein; (2) phenol phthalein; (3) indigo carmine. The excretion of the first ran parallel with that of urea. The use of phenol dyes was objected to by some on the ground that the presence of blood in the urine would vitiate a colour test, and that urine itself was coloured; but these difficulties might be surmounted by precipitating blood by zinc chloride and using urine in the standard colorimeter. The observers who thought highly of indigo carmine regarded the time in which it appeared as being of more importance than the depth of colour. If quarter hourly specimens were examined there should be a moderate degree of colour in the second quarter's urine, and deep coloration in the third and four quarters if the kidneys were acting properly.

The Results of Clinical Observation.

The results of clinical observation were admirably summarised in Mr. Cyril Nitch's words: "When a patient has a typical clayey complexion, a 'beefy' tongue, and complains of either thirst or disinclination for food, especially meat, I do not allow any chemical tests to influence me in favour of an operation. On the other hand, if the clinical condition is good and the tests are below standard, I should pin my faith to the clinical signs." The committee would prefer to say, as the conclusion drawn from the discussion that chemical tests of renal inefficiency indicated a risk in operating even when clinical signs were favourable. Warnings should be heeded, whether given by a clinical condition or by laboratory tests.

Mr. KENNETH WALKER read a paper on

The Accessory Sexual Glands in Animals.

The accessory sexual glands described were the prostate, vesicles, Cowper's glands, the epididymis, and the vas. The function of the prostate was considered by some to be the production of a fluid protective to spermatozoa, and experiments had been devised which appeared to show that spermatozoa remained alive and active seven to ten times as long in prostatic fluid as they did in normal saline. The vesicles were commonly thought to act as storehouses for the seminal fluid, just as the gall-bladder stored bile, but Mr. Walker considered that the function of the vesicles really overlapped that of the prostate. Steinach had shown that neither the prostate nor vesicles were essential to the accomplishment of the sexual act in the rat, and J. H. Walker had shown experimentally that the loss of the vesicles and prostate resulted in sterility without impotence, whereas the loss of either the vesicles or prostate caused neither sterility nor impotence. In reptiles and fishes the accessory sexual glands were probably represented by the cloacal glands, which produced a protective envelope to the sperms as soon as they were shed. Mr. Walker then showed drawings of the sexual apparatus of many animals, some of which were taken from dissections prepared by himself, and pointed out the more striking peculiarities of each. The ornithorhynchus had neither prostate nor vesicles, but the epididymides were very large. The marsupials exhibited the commencement of a prostatic tract, and were chiefly remarkable for their trilobed Cowper's glands. In the rodent the vesicles were voluminous and showed four lobes on each side: the vas had no ampulla, and there was a well-formed prostate gland. An animal found on the South American pampas exhibited enormous vesicles whose function was a mystery. In the rhinoceros it was difficult to distinguish the prostate from the vesicles when dissected. The Cowper's glands of this animal were, he said, huge, as they were also in the case of the wart hog. In the latter animal the large Cowper's glands exhibited a central reservoir for the secretion. It had been suggested that the secretion of Cowper's glands was intended to wash out the acid urine, which was inimical to spermatozoa, from the urethra. There was a well-marked uterus masculinis in the prostate of the deer and of the aardvaark, a South American animal, which raised the question of whether the uterus masculinis had not still some function in these animals. The large bulbous urethra of the tapir was the striking feature of the sexual apparatus of this animal. In the elephant the vas became very tortuous as it reached the urethra, and in the zebra the ampullary portion of the vas was a honeycomb formation, while the vesicles were simple saccular structures, so that in this animal the ampulla of the vas had taken on the function and form of the vesicle in other animals. It was remarkable that a well-developed ampulla was found in animals whose coitus was rapid. In the baboon there was a very small ampulla of the vas. In the chimpanzee, a higher type, there was no ampulla, while in man an ampulla reappeared again.

He concluded from the variation in development throughout the animal kingdom that there was an overlapping in function between the prostate and vesicles, for when one was well developed, the other was less in evidence. The exception to this was in the rodents. He had thought this an original observation until he had discovered a similar one in the works of John Hunter. Cowper's gland had an important function, he thought, especially in rodents. And, lastly, he considered that the epididymis and ampulla of the vas should have a place amongst the accessory sexual glands.

Discussion.

Mr. RALPH THOMPSON inquired whether the uterus masculinis of the aardvaark had been cut and identified as such. The large Cowper's glands in the pig tribe were striking, but he could not believe that the enormous amount of secretion from these glands was necessary to combat the infinitesimal amount of urine in the urethra. Mr. Walker had suggested that the verumontanum of the prostate was the trigger, stimulation of which caused ejaculation. He (Mr. Thompson) thought that its main function was to block the urethra during coitus when it became enlarged and congested. If it did not do so, we must admit the presence of an internal sphincter to the male urethra. His own view was that all the muscles of the urethra were connected with the sexual act, and had no function in connexion with urination.

Sir J. THOMSON WALKER pointed out that the mechanical conditions after prostatectomy in man were responsible for sterility. Was not the same true in the experimental rat?

Mr. FRANK KIDD suggested that the fluids produced by the accessory glands had a coagulating function, as could be seen in the case of fishes, and animals apt to be surprised in coitus. In man Cowper's gland was apparently functionless, and he found it difficult to see any use for the large Cowper's glands of some animals. As regards the after-results of prostatectomy, it was well known that impotence did not occur, but he asked whether anyone knew of cases of procreation after prostatectomy.

Mr. SWIFT JOLY replied to Mr. Kidd's question that he knew of a case where a man had married after prostatectomy, having been informed that he would have no children. Some years later he presented himself at hospital with the news that his wife had already presented him with three children, and a fourth was coming. He inquired whether this was sufficient grounds to accuse her of infidelity. Mr. Joly had seen the children, and thought they presented a remarkable likeness to the patient.

Reply.

Mr. KENNETH WALKER agreed that the explanation of the size of Cowper's glands in pigs was inadequate, and also that the verumontanum mechanically blocked the urethra during coitus, although he was convinced of its trigger action, both on anatomical

grounds from the number of nerves with which it was supplied, and clinically because he had found the verumontanum inflamed in patients complaining of impotence due to premature ejaculation. The explanation of sterility in the experimental rats would seem to be borne out by other experiments which he had not described. As regards the coagulating action of the fluids from certain accessory glands suggested by Mr. Kidd, he said that Walker, of Baltimore, had found glands the secretion of which did in fact coagulate semen.

A Miner's Egg.

Mr. KIDD showed a miner's egg—a large nugget of silver smeared with tallow which had been removed by operation from the rectum of a native who had worked in one of the silver mines in Chili. It was a common practice to smuggle silver out of the mines in this fashion, but on this occasion the nugget was so large as to resist extraction by the native, and had caused intestinal obstruction and retention of urine. He believed that the only other similar specimen was in the museum of St. Bartholomew's Hospital.

Mr. W. GIRLING BALL said that the specimen in St. Bartholomew's Museum had a central groove around which a string had been tied by the native to facilitate extraction. Unfortunately for him, this string protruded from the anus and led to the detection of the "egg" before the man left the mine.

Reviews and Notices of Books.

INFLUENZA.

Essays by Several Authors. Edited by F. G. CROOKSHANK, M.D., F.R.C.P. London: William Heinemann, Ltd. 1922. Pp. 529. 30*s*.

IT is manifest that Dr. Crookshank in his selection of collaborators and in his own contributions to this volume of essays has aimed at something more than a consideration of influenza alone. The reader in search of a special treatise upon clinical considerations will not be disappointed, but a special appeal to a different class of readers is afforded by the chapters for which Dr. Crookshank himself, Dr. W. H. Hamer, and Dr. Dwight Lewis are responsible in which they have clearly aspired to a special line of approach to medical problems in general, starting not from academic ideas but from an appeal to experience, mediate and immediate; thus building up a synthesis and considering not merely formal causes but the whole sequence of phenomena. Briefly to discuss Dr. Hamer's contribution "The Phases of Influenza" is in no sense to display a want of appreciation. His services to epidemiology receive a gracious tribute in Dr. Crookshank's abundant references. "Dr. Hamer as a student of Creighton first revived epidemiology. . . . He has shown himself to stand in epidemiological line of succession to the ancients and has declared that influenza has always had three striking characteristics: (1) Its 'posting character' involving large areas of the inhabited globe and prevailing in each affected community for some three or four months at a time; (2) its power of impressing the minds of observers as being a 'new disease'; and (3) its protean manifestations." The editor's own contributions comprise seven of the 17 chapters. To establish his position he has been at some pains to educate the reader. His first chapter is in fact didactically entitled "Method and Thought." From this he proceeds to "First Principles of Epidemiology," "Some Historical Conceptions of Influenza," "The Name and Names of Influenza," "The History of Epidemic Encephalomyelitis in Relation to Influenza"—"Clinical occurrences of the nature that we now ascribe to forms of encephalomyelitis or meningo-encephalomyelitis have been recorded in modern times for at least 450 years."

The recurrent motive of Dr. Crookshank's philosophy is an implied insistence on the method of Hippocrates. He deplores the neglect of logic and philosophy in the general mental attitude of the physician and deprecates the contemplation of science without metaphysics. Such deficiency he regards as responsible during the last pandemic for the failure to study (with Hippocrates) what really happened; instead we were content with investigating one conceptual reality—influenza and another—encephalitis lethargica, not to mention a large variety of "new diseases" and "pathological entities." Dr. Crookshank is careful to define in his preface that, although a certain community of opinion is manifested in this collection of papers written independently by authors without any sort of coöperation or collaboration, yet each is responsible only for what he has written, so that certain contradictions are inevitable. But the implication is doubtless intended that, with Dr. Crookshank, his fellow authors have gone over to Hippocrates—one is tempted to add in certain cases, in spite of themselves—and so have avoided the followers of Galen, mediæval realists in philosophy, "people who treat concepts as realities."

Thus in the contribution by Dr. Adolphe Abrahams on "Some Clinical and Therapeutic Considerations" (an expansion of the elaborate paper for which he was jointly responsible in 1919[1]), the introduction is a description of the condition "purulent bronchitis" which he investigated at Aldershot in 1915 and 1916, and which was regarded as a "new disease" endemic in the neighbourhood, but shown to be reproduced at exactly the same time in France and in various scattered areas throughout the British Isles. "Something strange was in the air." Yet, as Crookshank asks, to how many was this obvious? "The cavalry scouts of the advancing army are of it an integral part no less than is the cavalry corps controlled by the chief command."

Dr. Robert Donaldson is responsible for "The Bacteriology of Influenza." Some idea of the extent of his labours may be expressed in the statement that no fewer than 367 publications are quoted, and the exhaustiveness of his criticism of the results and opinions expressed therein is certified by the analytical tables of bacteriological investigation comprising 58 pages and a critical consideration in 97 pages of closely reasoned material. Donaldson cannot accept Pfeiffer's bacillus as the *causa causans* of the pandemic. He insists on the failure to find the organism in at least 66 per cent. of the cases. This failure, he points out, must be due either to faulty bacteriological technique or to the plain fact that the bacillus is not the cause of the pandemic. The first alternative he regrets and he supplies satisfying reasons for its rejection. *B. pfeiffer* is in his opinion a frequent "secondary invader," it thrives in tissues already damaged by some other virus. Nor is he able to discover the slightest shred of evidence that the disease is due to a so-called filter-passing virus.

Dr. Dwight M. Lewis, epidemiologist in the Department of Health, New Haven, Conn., U.S.A., supplies "Some Epidemiological Considerations concerning the Prevention of Influenza." He, too, regards as the chief source of confusion in our endeavours to understand the ætiology and prevention of influenza epidemics, the persistent way in which from the bacteriological and epidemiological points of view, certain *correlated* organisms have been considered as the organisms of independent, autonomous, and unrelated diseases. A masterly essay on "The Nervous Syndromes of Influenza" appears from the pen of Dr. Smith Ely Jelliffe. "The Ocular Affections in Influenza" are dealt with by Mr. J. McHoul; "The Complications Affecting the Throat, Nose, and Ear," by Mr. H. Lawson Whale; and "The Skin Lesions of Influenza," by Mr. Haldin Davis. Mr. A. W. Bourne contributes a chapter upon "Influenza: Pregnancy, Labour, the Puerperium, and Diseases of Women." Influenza, he says, confers a liability to

[1] THE LANCET, 1919, i., 1.

abortion or premature labour and an exacerbation of pelvic symptoms through a non-specific congestion. "The Surgical Aspect of Influenza" is by Mr. Sidney Boyd. Influenza, when accompanied, as often happens, by secondary infections, may act as a causative factor in many different lesions which in some cases develop many weeks or months after the initial illness. Mr. Boyd is sceptical as to the alleged increase of appendicitis during the epidemic, a doubt which has been fairly generally expressed by most observers, at any rate in this country. In his contribution, Dr. Abrahams mentions his inability to find any evidence of such relationship in the very large number of cases he investigated in the Aldershot Command.

Dr. Crookshank epitomises his personal views in the two concluding chapters, "The Theory of Influenza" and "In Brief." Much care has clearly been taken in revision. We have identified a certain number of trivial errors chiefly of proper names, condonable enough when the profuseness of references is considered, but the general accuracy must be described as remarkably good.

PRÉCIS DE PATHOLOGIE MÉDICALE.

By Various Authors. Edited by F. BEZANCON, M. LABBÉ, L. BERNARD, and J. A. SICARD. Vol. IV., Diseases of the Blood, by P. E. WEIL and M. BLOCH. Diseases of the Kidneys, by P. VALLERY-RADOT. Pp. 628. Vol. V., Diseases of the Alimentary Canal and of Nutrition, by M. LABBÉ and G. VITRY. Pp. 788. Paris: Masson et Cie. 1922. Fr.25 per volume.

THIS new text-book planned in six volumes, of which these two are the first to be published, is designed to fill a position between the great systems of medicine on the one hand and the little cram-books on the other. It corresponds to the text-books of Osler or Taylor, or more nearly to that of Allchin, though when complete it will, by a rough computation, be about twice as big as Osler's manual. It differs from these familiar works in being amply illustrated and in following the usual French arrangement which gives more space to what we generally call pathology —anatomy, histology, parasitology—and less to treatment. English students are well provided with text-books covering the same ground and to them the value of the present work will consist in its providing a sound, convenient, and readable account of the medical practice of our neighbours. The form in which it is published is in many ways more handy than that of our massive single volumes; the admirable series to which it belongs is, indeed, a model in this respect. It is unnecessary to deal with the various chapters individually, but the treatment of nephritis by Dr. Vallery-Radot requires mention as a courageous attempt to break away from conventional descriptions and weave the anatomy, physiology, and symptoms of these confused maladies into an intelligible whole. The remaining volumes will be awaited with interest; the sixth will perhaps have an index.

MENTALLY DEFICIENT CHILDREN.

Their Treatment and Training. Fifth edition. By G. E. SHUTTLEWORTH, B.A., M.D., &c., Hon. Consulting Physician, Royal Albert Institution, Lancaster; and W. A. POTTS, M.A., M.D., &c., Medical Officer to the Birmingham Committee for the Care of the Mentally Defective, &c. London: H. K. Lewis and Co., Ltd. 1922. Pp. xviii. + 320. 10*s*. 6*d*.

IN the fifth edition of this excellent book certain sections have been expanded, particularly that on mental tests. The authors state definitely their preference for the "Stanford revision" rather than the original Binet scale, but they give prominence also to the usefulness of certain of the practical tests used by Healy in his examination of delinquents, tests which bring out characteristics which the more purely linguistic tests of the usual scales fail to elicit. Dr. Prideaux's test by means of the psycho-galvanic reflex is also referred to. The authors' statement that the mental age is a measure of innate capacities is the assertion of a belief in the significance of mental tests that has passed away; and the diagnostic point, that, in the case of children below 9 years of age, a retardation of more than two years is an indication of deficiency, and in those above 9, a retardation of over three years, is surely not sufficiently accurate as a scientific criterion to justify its repetition three times in the course of the book.

The relative importance of hereditary and environmental influences in the production of deficiency is sanely discussed. Perhaps the most interesting point in this connexion is the growing recognition which the book shows of the importance of the secretions of the endocrine glands in relation to mental defect. The ante-natal clinic of the future, it is contended, may be able to avert mental defect in the child by glandular medication and hygienic treatment of the mother.

The arrangement of the book causes at parts some unnecessary repetitions; many statements regarding mongolism and other special types are made more than once in different sections. It is questionable, too, if it is justifiable to place congenital word-blindness and word-deafness in the pathological section. Their pathology is obscure, indeed, largely hypothetical, and the description of their clinical features would find a more suitable place in the section dealing with diagnosis. The chapter on the psychopathies of puberty is particularly valuable from the point of view of differential diagnosis, but some fuller discussion from the psychological standpoint of the juvenile delinquencies, so often erroneously labelled "Moral Imbecility," is overdue in text-books on mental deficiency. The illustrations, some of which are new, are very clear, and the bibliography of both book and periodical literature unusually complete.

MY MOORLAND PATIENTS.

By a YORKSHIRE DOCTOR (the late Dr. R. W. S. BISHOP). London: John Murray. 1922. Pp. 242. 12*s*.

THIS is a delightful volume of reminiscences, edited by a friend of the writer. Dr. Bishop was one of those general practitioners who are the backbone of the profession of medicine. Living laborious nights and days he practised in the Peak of Derbyshire and the moorlands of South and North-West Yorkshire. Gifted with health, a wonderful memory, and above all a strong sense of humour, he was not only the friend and counsellor of his patients, but was able to extract interest and happiness out of the most unpromising surroundings. The moorland folk up to 1906, when Bishop retired from practice, were singularly primitive in many ways, and practically untouched by modern ways, although, as Bishop says, "Life and character on the moorlands is rapidly changing. With the coming of the motor-car and the cycle, the charm and seclusion of remote England has nearly departed."

But during Bishop's time of practice many of the old ways, manners, and customs were still to be found. Remnants of folk-lore, old-fashioned methods of farming, and strange survivals of primitive savagery were all met with in the course of his day's work. Many of his stories refer to a period antecedent to his own time, though not long before, but the story of Hester and the Horners given in the chapter "Some Moorland Tragedies," dates in the twentieth century. Not only were there oddities among the moorlanders, but also among the squires and parsons. Dr. Bishop tells of one great lady of old family, whom he calls Miss Frank. She lived to the age of 90, and in her later years was so crippled by rheumatism that she could no longer attend the village church, built and endowed by her father. One day there came to visit her the mother of the vicar, the perfection, says Dr. Bishop, of sanctimonious cant, and the following conversation ensued: "Are you not deeply sorry, Miss Frank, that you cannot come to the dear church again?" "On the contrary," snapped Miss Frank, "I

am very pleased that I have not the vicar's dry, windy old sermons to listen to." A painful pause was followed by another attempt: "What a blessed consolation it must be that you are able to read the Blessed Book instead." "I never read the Bible." A still more painful pause—then: "O, how overjoyed you must be that each day brings you nearer to Heaven." "I don't wish to die," rasped Miss Frank. "I want to live as long as I can, and when I do die I am going to Hell. I shall possibly meet more of my friends there than in Heaven." A similar opinion was expressed by Aucassin in the story of Aucassin and Nicolette, who remarked that he would prefer Hell to Heaven because in the latter he would find no one but holy men and monks, while in the former he would meet all the noble knights and fair ladies. The name of the editor of Dr. Bishop's reminiscences is not given, but we are grateful to him for having preserved so charming a collection of scenes from a society which is rapidly becoming extinct.

ASPECTS OF DEATH.

Aspects of Death and Correlated Aspects of Life, in Art, Epigram, and Poetry. Fourth edition, revised and much enlarged. By F. PARKES WEBER, M.A., M.D., F.R.C.P. London: T. Fisher Unwin. 1922. With 146 illustrations. Pp. 851. 30*s.*

WHEN a book has reached its fourth edition, to be able to say that every edition is an improvement on the last is no mean thing. In only one matter this book is deteriorating; it is getting too big and heavy for comfort in reading. If the next edition were separated into two volumes this failing would disappear. Readers should feel grateful to Dr. Weber for an admirable anthology. We should like to see a companion volume dealing more fully with the various aspects and allusions to death as set forth in literature. Dr. Weber does, indeed, give a good many literary allusions in Part I., A under the heading "Philosophical Ideas," but we are surprised that he does not mention that beautiful book, far too little known, "Manchester al Mondo, a Contemplation of Death and Immortality," by Henry Montagu, First Earl of Manchester, first published in 1631. On p. 25, where he refers to the custom of looking upon death as the gaining of the harbour after a voyage, the author might have mentioned Thackeray's remark in a letter to Mrs. Brookfield, "Out of our stormy life, and brought nearer the Divine light and warmth, there must be a serene climate. Can't you fancy sailing into the calm?" On p. 21, concerning the phrase "joining the majority," an euphemism for death common to many languages from Greek downwards, it is pleasant to recall Monckton Milne's dying remark, "Yes, I am going to join the majority, and you know I have always preferred minorities." However, Andrew Lang warns us against reviewing a book by saying what it does *not* give, and we can recollect with gratitude Dr. Weber's wealth of material and illustration which go to make his book a classic.

PSYCHO-ANALYSIS.

Its Theories and Practical Application. Third edition, thoroughly revised. By A. A. BRILL, Ph.B., M.D., Lecturer on Psycho-analysis and Abnormal Psychology, New York University. London and Philadelphia: W. B. Saunders Company. 1922. Pp. 468. 24*s.*

AMONG the many books on this subject it may be helpful to indicate those which would be regarded by representative psycho-analysts as important contributions to their subject. This work of Dr. Brill's, now in its third edition, is so regarded, and though he does not claim originality, he presents Freudian theory largely in the light of his own experience. A new chapter on paraphrenia should be useful to analysts and others as indicating difficulties in diagnosis, the author frankly telling us that, "I have often diagnosed such cases as hysterias and compulsion neuroses only to find out after months that I was mistaken" (p. 256). Since they are not amenable to treatment by analysis the diagnosis is important. No claim is made to treat schizophrenia (Bleuler's term for dementia præcox, which is often "neither a dementia nor a præcox"), but Brill, following the Zurich school, shows in a detailed analysis that "Whenever the patient's mind can be entered he ceases to be an enigma and his 'senseless actions and utterances' cease to appear senseless" (p. 247).

The book presents orthodox psycho-analytical theory well illustrated by clinical material; the reader to whom this is a first acquaintance with the subject may, however, find that the meagre description of technique, and especially of free association methods, will leave him with a feeling that he would like to know how all the material was obtained. For an exposition which does not attempt to be "popular" the book is readable and easily understood.

SAFE MARRIAGE: A RETURN TO SANITY.

By ETTIE A. ROUT. London: William Heinemann, Ltd. 1922. Pp. 78. 3*s.* 6*d.*

THE campaign against venereal disease is carried on without gloves in the Australian continent. The front page of the Sydney *Bulletin* for May 11th is occupied by a cartoon entitled "The Sins of the Fathers," depicting a young and charming mother with two congenitally syphilitic children—a graphic and terrible object-lesson. An editorial article in the same issue under the heading "Plain English" speaks of women with a taste for public affairs who claim that, while full measures are desirable in other contagious diseases, half-measures only must be applied to the commonest and most disastrous of them. Miss Rout is not among these women, and her indomitable anti-venereal work during the war as a New Zealand volunteer sister is still fresh in the memory. The book before us applies the same uncompromising principles to civil life. Miss Rout's direct and incisive style, with which her polemical writings have made us familiar, is shown to advantage in this popular description of the methods recommended for preventing either conception or infection as a result of sexual intercourse. The description is clear and detailed, including not only the appliances needed but also directions as to where they may be procured; and the seal of approval of at least one section of the medical profession is given in a preface by Sir Arbuthnot Lane. For more than 12 months Miss Rout apparently supervised a "tolerated house" in Paris so successfully that no single case of venereal disease was reported either among the prostitutes or their clients. With this indication of the author's attitude to sex problems readers will hardly be surprised by her philosophy of marriage. That "chastity" is sexual intercourse between a man and a woman who love one another, while "unchastity" is intercourse between a man and woman who do not is doctrine common enough in these days, and may seem to many a more liberal teaching than that of St. Paul. But Miss Rout writes (on page 45), that "if a woman is unfortunate enough to be married to a man liable to infect her" she should take the same precautions as all other women about to have intercourse, with the addition that she should "use a special suppository, as prescribed by her doctor or otherwise authoritatively recommended." Most people, even those who are not ardent champions of woman's rights, would defend her right to the surest method of maintaining her health. By thus placing "chastity" before hygiene, the author surprises us to the verge of intolerance.

JOURNALS.

JOURNAL OF LARYNGOLOGY AND OTOLOGY. May and June, 1922. Vol. XXXVII., Nos. 5 and 6.—The May number opens with an account by Mr. A. R. Tweedie of the recent research work carried out by Magnus, de Kleijn, and others on the saccular, utricular, and allied reflexes, and on the functions of the otoliths; the so-called "progressive movement reflexes," the "neck reflexes," and the "otolithic

reflexes" are briefly described. It is hoped that these delicate investigations will eventually lead to a more exact knowledge of the obscure functions of the labyrinth.—Dr. E. Hamilton White, of Montreal, describes the adaptation of the "epithelial inlay" to skin-grafting after the radical mastoid operation; a cast of dental compound, or stent, is made to fit the cavity and holds the graft in position; it is removed at the end of a week through the retro-auricular wound, which has been kept open.—Mr. E. Watson-Williams contributes an article on the diagnostic value of transillumination of the maxillary antra; of 106 bright and equal antra, 35 were found on further exploration to be unhealthy, while of 153 dull or unequal antra, 39 were healthy; the error was greater where cultures of the washings were made, but it is doubtful whether the growth of organisms from the clear washings of the antrum must be accepted as positive proof of disease.—Dr. D. McKenzie writes a short note on the influence of oral sepsis on the course of cancer of the pharynx and gullet; he has observed that the growth is slower and less virulent in edentulous patients, and advises that all teeth should be extracted in the sufferers from inoperable cancers of this region.—Dr. A. Campbell, of Port Elizabeth, describes a case in which the approach for an intranasal dacryocystostomy was facilitated by working from the opposite nostril through a temporary window in the septum nasi, and suggests that it would be easy to perform an intranasal operation on the antrum by the same route.

In the June number Dr. Irwin Moore begins a study of the so-called prolapse of the laryngeal ventricle and eversion of the sacculus. He gives a very full account of the anatomy and histology of the parts concerned, with every possible reference to authorities and excellent illustrations of dissections by John Hilton and Prof. Shattock.—Mr. D. Watson gives an analysis of 84 cases of the "modified" radical mastoid operation performed at the Edinburgh Royal Infirmary from 1907 to 1921; he finds that dry cavities were obtained in 50 per cent., which is considerably below the percentage obtained by the radical operation, but that the results as regards the hearing were decidedly better.—Dr. Hemmeon, of Halifax, N.S., describes a case of cavernous sinus thrombosis of otitic origin occurring in a boy of 4 years old; as no post-mortem examination was made, the route of infection could not be traced.—Sir J. Dundas-Grant refers to a method of passing an oily solution into and through the larynx by pouring half a drachm thereof into the patient's nostril.—Mr. E. M. Woodman discusses malignant disease of the nasal accessory sinuses, condemns the antiquated "text-book" excision of the upper jaw, and describes the technique he prefers; his incision starts above at the middle of the eyebrow, and thus gives good access to the ethmoid and orbit, while obviating the incision below the orbit, which is unsightly and followed by obstinate œdema of the lower lid; the lower part of the incision is that of the classical excision of the jaw.—Mr. W. G. Howarth describes a case of intrinsic malignant disease of the larynx in a woman, aged 52, successfully removed by thyrotomy, with a report on the tumour by Prof. S. G. Shattock, who classifies it as a basal-celled carcinoma.

TROPICAL DISEASES BULLETIN. Vol. XIX. No. 4.—In the May number Colonel A. Alcock, has reviewed the recent progress of medical zoology in an important contribution. Commencing with the protozoon parasites of the intestine, he traces the important developments in our knowledge of the distribution and pathogenic rôle of the *Entamœba histolytica*, founded mainly on the work of Malins Smith, J. R. Mathews, and Clifford Dobell. The evidence collected shows that the indigenous infections with *E. histolytica* in temperate countries may, quite occasionally, manifest all the typical signs and symptoms of amœbiasis. We are justified in considering that this parasite becomes pathogenic only under certain circumstances. Regarding the general study of the intestinal protozoa of man, Dobell and F. W. O'Connor, in their recent work, have drawn a clear distinction between the true intestinal fauna and the accidental and delusive fauna of the fæces themselves—the coprozoic protozoa. Of the protozoa proper to the human intestine, 17 species are recognised. Reference is made to O'Connor's discovery of the Iodamœba in pigs in Funafuti, an observation confirmed by L. Cauchemez in France. Regarding protozoon blood-parasites, reference is made to E. R. Whitmore's observations on bird malaria to the effect that the blood of infected canaries remains infective for at least 29 months after parasites have ceased to be visible in the circulation, while Etienne Sergent has demonstrated that in this condition the bird's blood is infective to Culex. J. D. Thomson has cleared away Schaudinn's misleading hypothesis of parthenogenesis of the plasmodium gametocyte, by demonstrating that this supposed process is merely an instance of a schizont and a gametocyte intimately enclosed in the same red blood corpuscle. Mention is made of C. A. Gill's work on the combined influence of moisture and temperature on development of the malaria parasite in mosquitoes, while the experiments of Mitzmain and Wenyon upon the history of malaria parasites in hibernating mosquitoes is also cited. On the subject of snake-bite and snake-venom praise is bestowed upon the essay of H.W. Acton and R. Knowles in the *Indian Journal of Medical Research* for July, 1914, in which, based upon intelligent experiment, concise and coherent arguments, numerous luminous and practical conclusions with reference to treatment are advanced. The claims of gold chloride (10 c.cm. of a 5 per cent. solution), as a means of neutralising snake toxins are advocated. Other animal poisons, such as the work of Kabeshima on the toxins of *Plotosus anguillaris*, and that of Matsusaji and Kabeda on the cutaneous venom of the salamander *Triton pyrrhogaster* are also duly considered.

BIOCHEMICAL JOURNAL. Vol. XVI., No. 1, 1922.—The contents of this issue are of a varied and interesting character. The Action of Hypophysin, Ergamine, and Adrenaline upon the Secretion of the Mammary Gland, by E. Rothlin, R. H. A. Plimmer, and A. D. Husband. Injection of hypophysin leads (in goats) to an increased flow of milk only during the early stages of lactation, but this increased flow is followed by a period of diminished secretion, so that the total daily output of milk is unaffected. The action of hypophysin is probably an indirect one through the reproductive organs. Neither adrenaline nor ergamine affect the mammary secretion; the gland, therefore, is probably not supplied by autonomic nerves.—The Rearing of Chickens on the Intensive System. Part I. The Vitamin Requirements: Preliminary Experiments. Part II., The Effect of "Good" Protein, by R. H. A. Plimmer and J. L. Rosedale, with the assistance of A. Crichton and R. B. Topping.—Distribution of Enzymes in the Alimentary Canal of the Chicken, by R. H. A. Plimmer and J. L. Rosedale.—The Amino-Acids of Flesh: The Di-amino-acid Content of Rabbit, Chicken, Ox, Horse, Sheep, and Pig Muscle, by J. L. Rosedale.—Xylenol Blue and its Proposed Use as a New and Improved Indicator in Chemical and Biochemical Work, by A. Cohen.—The Examination of Some Indian Foodstuffs for Their Vitamin Content by S. N. Ghose. Pure Indian "Ghee" is rich in vitamin A, but remelted and adulterated samples are deficient. Vitamin B was found in the "Dals" (lentils) examined, and in the crude and unbleached, but not in the bleached Indian flour.—Conditions of Inactivation of the Accessory Food Factors, by S. S. Zilva. The fat-soluble vitamin of cod-liver oil is destroyed by ozone at ordinary temperatures and by air at 120° C. The anti-neuritic vitamin of autolysed yeast is not oxidised by ozone. The antiscorbutic factor of lemon juice is readily oxidised by ozone or by air at ordinary temperatures, but is not destroyed by boiling if air be excluded.—An Improvised Electric Thermostat Constant to 0·02° C., by S. C. Bradford.—Tethelin: the Alleged Growth-controlling Substance of the Anterior Lobe

of the Pituitary Gland, by J. C. Drummond and R. K. Cannan. The product tethelin, isolated by Brailsford Robertson from the anterior lobe of the pituitary, is an impure mixture of lipoids: the anterior lobe administered to mice with their food does not affect their rate of growth.—The Estimation of Pectin as Calcium Pectate and the Application of this Method to the Determination of the Soluble Pectin in Apples, by M. H. Carré and D. Haynes.—On the Occurrence of Manganese in the Tube and Tissues of *Mesochætopterus Taylori*, Potts, and in the Tube of *Chætopterus Variopedatus*, Renier, by C. Berkeley.—Mammary Secretion. III.: (1) The Quality and Quantity of Dietary Protein; (2) The Relation of Protein to other Dietary Constituents, by G. A. Hartwell. A lactating rat fed on a diet containing an excessive proportion of proteins produces milk which is toxic to the young at a certain stage of development, although the diet itself is physiologically complete and adequate. The harmful effects on the offspring are obviated by the addition of whole milk to the mother's diet, and are relieved by the addition of marmite (yeast extract) to an extent which varies according to the particular protein fed in excess in the food.—Effect of Severe Muscular Work on Composition of the Urine, by J. A. Campbell and T. A. Webster. As a result of the performance of 100,000 kg.m. of work the output of creatinine, undetermined nitrogen, neutral sulphur, and lactic acid were much increased, and acetone bodies were present during part of the experiment.—The Value of Gelatin in Relation to the Nitrogen Requirements of Man, by R. Robison. The addition of gelatin to a nitrogen-free diet produces a saving of body nitrogen to the extent of approximately 12 to 16 per cent. of the previous output, these two values being obtained according as the nitrogen of the fæces is regarded as unabsorbed or as excreted nitrogen.—Note on Tannase, by D. Rhind and F. E. Smith. A method of estimating the hydrolysing power of the enzyme.—Distribution of the Nitrogenous Constituents of the Urine on Low Nitrogen Diets, by R. Robison. Results very similar to those of Folin were obtained.—The Estimation of Total Sulphur in Urine, by R. Robison.—The Action of Yeast-growth Stimulant, by O. K. Wright.—The Function of Phosphates in the Oxidation of Glucose by Hydrogen Peroxide, by A. Harden and F. R. Henley.—Vitamin Requirements of Drosophila: (1) Vitamins B and C, by the late A. W. Bacot and A. Harden.

Reports and Analytical Records.

SOLOID ANTIMONY TARTRATE COMPOUND.

(BURROUGHS, WELLCOME AND CO., SNOW HILL BUILDINGS, LONDON, E.C. 1.)

WE have received from Messrs. Burroughs and Wellcome specimens of their "Soloids" antimony tartrate, of which form No. 1 are composed of antimony and sodium tartrate 10 gr., and chloride of sodium 5½ gr.; while form No. 2 is one-tenth this strength. The drug is, as our readers know, very valuable in the treatment of bilharziasis and leishmaniasis, and we may refer readers to two papers on the subject which appeared in THE LANCET of March 12th last year (vol. i., 1921, pp. 522 et seq.). The first of these papers was a serial continuation of notes on the intravenous injection of antimony tartrate, on which subject previous notes appeared in THE LANCET (vol. ii., 1919, p. 299, and vol. ii., 1920, pp. 528 and 1200). The second paper dealt with the outpatient treatment of bilharziasis with an analysis of 1000 cases, and the testimony of these two communications to the value of the "soloids" will be obvious. The dose recommended in the directions which accompany the drug is practically the same as that recommended in the communications to which we have referred.

TABLOID QUINIDINE SULPHATE.

(BURROUGHS, WELLCOME AND CO.)

Quinidine sulphate, an isomer of quinine, while possessing general properties similar to those of quinine, is claimed to exert therapeutic action in auricular fibrillation. This action has been described in a scientific communication as "perhaps one of the most remarkable and dramatic which is now known to therapeutics" (Lewis, Drury, Iliescu, and Wedd: *British Medical Journal*, Oct. 1st, 1921, p. 514), and reports from other observers indicate that the condition has been checked or improved in some 50 per cent. of the cases treated. Such evidence clearly warrants a trial of the drug in suitable cases, though possible drawbacks to the employment of quinidine have to be pointed out. Its administration demands exact diagnosis and careful watching, and its use requires further investigation, though in suitable cases it is justified. Messrs. Burroughs, Wellcome and Co. have made the medicament available in convenient form and dose as a "Tabloid" product, and "Tabloid" quinidine sulphate is issued in bottles of 100 products, each containing 0·2 of the drug.

TALCUM.

(F. S. CLEAVER AND SONS, LTD., GOULD-ROAD, TWICKENHAM.)

The value of foliated talc is known to all dermatologists, as well as the necessity that the siliceous powder should be absolutely pure. Cleaver's talcum has been used as a dusting powder, especially in the nursery, for a long space of time, and in its latest form is packed in a refillable tin, so that accidental contamination is rendered impossible.

PHYTIN AND ITS DERIVATIVES.

(CLAYTON ANILINE COMPANY, LTD., 68½, UPPER THAMES-STREET, LONDON, E.C. 4.)

Phytin has been before the medical profession since 1904, when its biological action and therapeutic uses were described by Prof. A. Gilbert and Dr. A. Lippmann, of Paris. It is the trade name for the double salt of inosite-hexaphosphoric acid with calcium and magnesium. According to our analysis, phytin contains at least 50 per cent. of phosphorus, calculated as P_2O_5, without protein or indeed any appreciable amount of nitrogen. It thus differs essentially from nuclein or lecithin. The French observers found that the phosphorus present was in assimilable form and that nitrogenous metabolism was notably increased by the administration of quite small doses whether subcutaneously or by the mouth. In tuberculosis, neurasthenia, and syphilitic anæmia administration of phytin increased appetite and raised the number of red cells in the blood. Recently M. S. Posternak, of Geneva, has shown that synthetic inosite-phosphoric acid is identical with the phospho-organic reserve material of green plants. Other preparations are ferrophytin which contains 7 per cent. of iron, and quinine-phytin in which the quinine content is nearly 60 per cent. The latter has been found to give good results in the treatment of malaria. All these are put up in tablet form. Fortossan is a combination of phytin with lactose intended for children under 2 years of age.

SAL HEPATICA.

(BRISTOL-MYERS CO., NEW YORK, U.S.A. AGENTS: STONE-BALLANTINE, LTD., 13, WELL COURT, QUEEN-STREET, LONDON, E.C.)

This is an effervescent saline combination containing alterative and laxative properties. When analysed it was found to have the composition:—

	Per cent.
Sodium bicarbonate	20·6
Tartaric acid	18·4
Sodium sulphate	27·7
Sodium chloride	8·6

This mixture, unlike many aperient preparations, contains no magnesium sulphate (Epsom salts), but it contains sodium phosphate, a useful ingredient which keeps the particles discrete and dry in a manner similar to the well-known "Cerebos" table salt. When mixed with water in the proportions indicated an effervescent draught results which is an agreeable variation of the "Seidlitz powder" type of salts.

THE NORMAL CHILD'S CHEST.

BEING A REPORT TO THE NATIONAL TUBERCULOSIS ASSOCIATION (U.S.A.) ON THE X RAY AND CLINICAL FINDINGS IN THE NORMAL CHEST OF CHILDREN FROM SIX TO TEN YEARS.

THE National Tuberculosis Association some time ago began a new and important phase of its work in an attempt to increase the quantity and character of research work in problems related to its own field in the United States. For this purpose it appropriated $20,000.00 and appointed a small committee composed of Dr. Wm. Charles White, Medical Director of the Tuberculosis League of Pittsburgh, Dr. Paul A. Lewis, Director of Laboratories of the Phipps Institute, Philadelphia, and Dr. Allen K. Krause, Director of Kenneth Dows Research Fund, Johns Hopkins Hospital, to expend these funds to the greatest advantage.

This committee decided that the best use of these funds would be in assisting researches already under way that held the greatest promise of increasing the practical knowledge of physicians dealing with tuberculosis. This, they considered, would bring the greatest help to those suffering from tuberculosis and the greatest boon to the public from whom the funds were collected. This plan has been carried out in coöperation with the universities.

One of the researches was an effort to establish the X ray and clinical findings in the chest of a normal child up to 10 years of age. For this problem the National Tuberculosis Association nominated the following groups of rontgenologists and clinicians: Dr. H. K. Pancoast and Dr. H. R. M. Landis, University of Pennsylvania; Dr. F. H. Baetjer and Dr. C. R. Austrian, University of Johns Hopkins; Dr. H. K. Dunham and Dr. K. D. Blackfan, University of Cincinnatti. The signed reports of this Committee on Medical Research are here presented in two sections with the hope that they may promote a discussion which will be fruitful in establishing the truth in these two fields.

REPORT OF THE CLINICAL DIVISION.

The value of rontgenography in determining the presence of pulmonary disease has long been recognised. Studies to determine the rontgenograms of various pathological lesions of the lung have been almost without number, yet much difference of opinion exists in the interpretation of findings, largely because no satisfactory observations have been made establishing the variations that may occur in the normal. To one observer, shadows noted are indicative of disease; to another, they are not evidence of a pathological process; to one, they represent lesions of clinical significance; to another, they suggest changes of no moment. The realisation of this unsatisfactory state of affairs was widespread, but it remained for the Research Committee of the National Tuberculosis Association seriously to consider it and to set about to correct the shortcomings.

In the spring of 1920 that committee called together the collaborators in this work and instructed them to set about in ways of their own choosing to solve the problem, extended to them a financial grant, and in order that the problem might be a very definite one, asked that the immediate study be limited to a consideration of the chests of normal children between the ages of 6 and 10 years. The work was begun promptly and a preliminary report was made at the annual meeting of the Association in May, 1921. The findings at that time were incomplete and because of the then limited observations, no very definite conclusions were drawn. However, the practical need of a solution of the problem was apparent. Study was continued throughout 1921 and the first four months of 1922, and the data independently assembled were jointly discussed to evaluate them. Although each pair of workers carried on its investigations without intergroup consultation, although each approached the subject from a different angle and when first met held views apparently not altogether in accord, it was agreeable to find that an exchange of conclusions disclosed almost a unanimity of opinion.

The Normal Child.

Theoretically, the normal child is one of ideal height, weight, and development for his age, without subjective or objective evidences of deformity or of disease and without residual changes due to antecedent pathological processes. Practically, a normal child is one of average height, weight, and development for his age, symptom-free and without signs of disease. Each such individual, in more or less relation to his age, will have been ill more or less often, and as a consequence may be expected to show variations from the ideal, not because of present disease, but as a result of residual changes that persist. An appreciation of these facts makes it apparent that the findings, clinical and rontgenographic, in normal children as we meet them will vary greatly from any fixed standards and still must be considered as variants of normal.

The clinical data dealt with in this report were obtained by careful examination of apparently healthy children between the ages of 6 and 10 years. All children who showed signs of disease were excluded from the series. Individuals from various strata of society, foreign and native born, residents of urban and of rural communities, school children and children residing in institutions, children exposed to tuberculosis and some without a history of such exposure, children with and without a history of previous infectious diseases, all symptom-free, and of an approximately normal height and weight for their ages, were studied. A history of each individual was recorded, and in making the examinations of the chest, care was always observed to have the child relaxed and to see that no cramped or unnatural posture was assumed, for, as is well known, faulty position may lead to findings that cause confusion and interpretation. In addition, a tuberculin test was made on every child. The clinical data were then assembled, and after the rontgenologist had interpreted his plate independently the clinical and rontgenographic findings were correlated.

Fremitus and Resonance.

In all, over 500 children were thus studied, and as a result some definite conclusions seem warranted. As in the adult, so in the child, vocal fremitus is more marked over the right upper chest than over the left. It is generally stated that the percussion note elicited over the lungs of normal children within the age limits under consideration, is fuller, more tympanitic, of higher pitch and more resilient than that noted over those of adults, and that frequently the tympanitic quality is quite outspoken, especially over the lower lobe of the left lung. Although in general our observations confirmed this view, we have been impressed by the fact that in an appreciable number of such children, the note obtained on percussion over the lungs is indistinguishable in quality from that elicited over the lungs of normal adults and that the usual resilience of the note is lacking. These findings in many instances have an analogue in shadows noted in the X ray films, shadows indicative of increased density along the bronchial tree, similar to those seen in the plates of normal adults. This correlation of the findings on physical examination and on X ray study is more constantly possible in studies of the upper half of the chest. When minor changes, similar to those discovered by X ray examination of the upper lobes, occur in the bases, they usually escape detection on physical examination. In those instances in which no shadow is found to explain the deviation of the note from the generally accepted one, it is our belief that the lack of resilient quality may be due to a decreased elasticity of the chest wall.

The so-called tympanitic quality of the percussion note over the left base may be increased, decreased, or be entirely lacking, depending upon the degree of distension of the stomach or colon, the curvature of the spine, and may likewise vary with the position of the diaphragm or with the posture of the child during the examination. The note over the upper thorax is often the same on the two sides. Kronig's isthmus

averages 5 to 6·5 cm. in width. The lower margins of the lungs posteriorly are at the level of the tenth or eleventh rib and descend from 1·5 to 3·5 cm. during forced inspiration.

A just detectable diminution of resonance over the apical regions is of no significance unless associated with a modification of the breath sounds in those areas or with other abnormal auscultatory findings.

Breath and Voice Sounds.

It is generally accepted that normally in childhood the breath sounds have a harsh, sharp character, with expiration longer and better heard than in the normal adult. This so-called puerile breathing is physiological, and though it may seem trite, let it be emphasised that this exaggerated vesiculo-bronchial respiratory murmur, especially well heard in the areas overlying the great bronchi (i.e., anteriorly at the level of the first interspace and the second rib just lateral from the sternal margins, and posteriorly, particularly on the right side, at the level of the second to the fourth spine) is often incorrectly interpreted as evidence of pulmonary disease. An auscultatory finding that has not been pointed out, or at least, has not been emphasised, has come forcibly to our attention in carrying out this study. Just as the full, deep note or higher pitch characteristically elicited by percussion of the child's chest is often replaced in health by a note more like that produced when one percusses the normal chest of an adult, so, on auscultation of a child's normal lungs, the exaggerated or puerile breath sounds may be lacking, and instead the so-called vesicular respiratory murmur characteristically present in adult life is heard. This finding, regarded by us as a physiological variation, has been noted as early as the age of four years and may perhaps occur in younger children. It is more readily appreciated and more often found than the variation in the percussion note just described. In more than 50 per cent. of the children in which this type of breathing was heard, examination with the X ray gave findings like those obtained by a study of normal adult chests. In fact, the agreement of clinician and rontgenologist was so constant that we have come on the basis of these variations to designate the chest of normal children as of "puerile" or of "adult" type. The essential fact to be stressed is that so-called vesicular respiration is heard with great frequency in normal children, and is to be regarded as a variation of normal and not necessarily as an indication of disease. These variations and those of the percussion note are more generally found in children with a history of infections of the respiratory tract. No satisfactory explanation for this finding is offered. It may be due in part to altered resilience of the chest wall, a suggestion supported by the fact that in some instances in which it was noted diminished elasticity of the thoracic wall was apparent on percussion. It may stand in relation to variations of elasticity of the parenchyma of the lung. It may be due to a relative narrowing of the lumen of the bronchial tree. It is hardly to be considered evidence of increased density of respiratory tissue, for theoretically that should lead to a modification towards bronchial breathing.

Concerning the whispered voice sounds, little comment needs to be made other than to emphasise their loud transmission often with syllabation over the region of the major bronchi. Auscultation of these sounds over the upper thoracic spine of the children has led to the conclusion that D'Espine's sign as indicative of enlarged tracheo-bronchial lymph nodes is, to say the least, of doubtful value. In 23 of the children this sign was elicited without other signs of a mediastinal mass and without any corroborative evidence on X ray examination. In three the sign could not be elicited, although from the X ray plate it might have been inferred that it should be. Eustace Smith's sign is so generally present in normal children that it is of little or no practical diagnostic worth. The presence of these two signs, together with impairment of resonance in the interscapular region, is all too frequently made the premises for a diagnosis of tuberculosis of tracheo-bronchial lymph nodes. This is unwarranted for, as indicated, these signs are unreliable evidence of a pathological condition and the determination of a diminution of resonance in the interscapular region requires such a nicety of technique that even matters of percussion disagree as to the presence or absence of significant findings in this region of the chest.

Rôle of Antecedent Infections.

A year ago, in the preliminary communication to this Society, we stressed the importance of the rôle that antecedent infections might play in the production of areas of increased density within the respiratory tract. (Bronchial tree, parenchyma of the lungs, &c.) This fact is re-emphasised, for further study has established the importance of it. Not only may recognised or remembered infections of the bronchi and lungs be responsible for alteration in these tissues, but other diseases not ordinarily considered of significance in this regard may be causal of such changes. For example, our observations indicate that after measles, pertussis, or tonsillar infections, areas of increased density radiating from the hilum into the bases especially, occur with great frequency. Such lesions generally are not discoverable on physical examination and would be unsuspected but for the use of the X ray. They are referred to in the clinical part of our joint report in order to point out the need of a careful history as well as examination in all individuals before proceeding finally to interpret the findings of the rontgenologist. By way of digression, it may be interesting to point out the fact that though measles and pertussis have been known to produce lesions in the upper air passages, involvement of the lower tract has been considered a complication and was thought to occur only when evidence of bronchitis or of broncho-pneumonia was discovered. Our observations indicate that there may be a mild inflammatory process throughout the respiratory passages in a large percentage of the so-called uncomplicated cases of these diseases. This suggestion warrants further study in relation not only to the infections under consideration, but also other infectious diseases. That such shadows, mediastinal and basal, noted in children who give a history of uncomplicated measles and pertussis are evidence of healed processes is shown by the experience that similar shadows of like origin have remained unchanged and without the development of clinical symptoms in a series of children observed from 3 to 5 years. Such changes must be properly evaluated as indices, not of present disease, but of lesions past and healed, not as warrant for the diagnosis of present illness and the institution of treatment, but as scars of infections met and overcome. Most of the children included in this study were tested with tuberculin—some were given a cutaneous test with old tuberculin (Pirquet)—others were tested by the intracutaneous method (Craig).

The foregoing facts have been detailed at some length to establish the major thesis that, clinically, the ideal, normal child is a hypothetical impossibility. Children, apparently healthy, symptom-free and active, show on careful examination many deviations from fixed standards, variations that must be interpreted as within physiological limits; standards of height and weight must be elastic; measures of resonance and of resilience of the chest must not be rigid and estimates of acoustic phenomena must permit of a range of difference from the ideal. These facts clinical experience establishes beyond peradventure, and they suggest a corollary—namely, that X ray examination of the chest of such children may be expected to show comparable deviations from a fixed ideal rontgenogram.

Conclusions.

1. The data obtained on percussion and auscultation of the lungs of normal children show wide variations from a fixed standard. These variations are usual and are considered to be within normal limits.

2. Inasmuch as the changes referred to are dependent often upon alterations that persist as the residua of

past infections of the respiratory tract, it is obvious that a careful anamnesis, with special reference to all infections, is necessary if diagnostic errors are to be avoided. Even a history carefully taken is often unreliable, as minimal infections are soon forgotten by many and among the unintelligent classes even more significant indispositions are not readily recalled.

3. Failure properly to evaluate these deviations from a fixed standard will often lead to the unwarranted diagnosis of disease and to even less justifiable treatment.

4. With a proper appreciation of the widest variations that the normal may present from the ideal, the informed clinician is better able correctly to understand the findings of the rontgenologist, and each, coöperating with the other, is less liable to error.

5. D'Espine's sign as indicative of enlarged tracheobronchial lymph nodes is of little value.

6. Recognition of and familiarity with the foregoing data is of cardinal and practical importance to every patient, potential and established. Without a proper appreciation of the facts set forth, no intelligent differentiation between a normal and an abnormal respiratory tract can be made.

In brief, to establish the presence or absence of disease, it is imperative that all data—clinical, laboratory, and rontgenographic—must be evaluated and correlated and that no one fraction of the evidence be stressed to the exclusion of the others.

(Signed) C. R. AUSTRIAN,
H. R. M. LANDIS,
May 6th, 1922. KENNETH D. BLACKFAN.

REPORT OF THE X RAY DIVISION.

It is generally conceded that one of the most important factors in accurate interpretation of the appearance of morbid processes in the rontgenogram of the thorax is a thorough familiarity with the normal and variations therefrom within normal limits. With a full realisation of this in view the National Tuberculosis Association in 1920 appointed a committee comprising three rontgenologists and three internists to make a study of the normal chest of the child between the ages of 6 and 10 years. This group was instructed to work in coöperation and to make a report of their investigations before the Association when their studies were completed and their conclusions reached. The members selected for the committee were Dr. H. Kennon Dunham, of Cincinnati, Dr. Frederick H. Baetjer, of Baltimore, and Dr. Henry K. Pancoast, of Philadelphia, to act in the capacity of rontgenologists and to work in coöperation with the respective internists in the same cities, Dr. Kenneth Blackfan, Dr. Charles R. Austrian, and Dr. H. R. M. Landis. Each group of two was to work independently until a satisfactory number of individuals were examined and the entire committee was then to meet and draw their conclusions for presentation. It was to be the duty of the internist in each group by careful clinical study to select as nearly normal children as possible for examination by the rontgenologist. The entire procedure was to be carried out with strict coöperation between the two members of each group.

It was soon realised by the X ray members of the groups that an attempt to describe a normal chest was practically impossible. Their endeavours soon began to centre around the description of a theoretical normal with wide variations that would serve as a basis for the interpretation of abnormal appearances and tend to preclude the possibility of erroneous diagnoses being based upon faulty interpretations of hilum shadows, trunk shadows, and linear markings more or less altered in appearance by the frequent respiratory infections of children. They realised that herein had existed the greatest source of error in interpretation, and no doubt the Association had this same thought in mind when the committee was appointed to take up these investigations. Errors in interpretation have been made chiefly in connexion with the diagnosis of pulmonary tuberculosis.

Wide Variations within the Normal.

It was the consensus of opinion that children are probably more apt to show definite X ray evidences in the hilum and trunk shadows of simple as well as serious respiratory infections than adults. Practically all children of the ages of those examined have had at one time or another one or more respiratory infections, especially measles and whooping cough, that are likely to produce very apparent changes in the shadows mentioned and which will remain distinctly visible for a variable period of time. These apparent deviations from the normal are not necessarily abnormal when observed, but may be the harmless results of one or more infections. No doubt such appearances have many times been misinterpreted as evidences of tuberculosis. In the conclusions reached by the committee the attempt has been made to preclude this possibility.

Many of the general observations made have not been included in the conclusions. One of those perhaps worth mentioning is the fact that the heart of the child is found to extend relatively further to the right than in the adult. The thoroughness with which the studies were carried out may be in part realised from the number of individuals examined. Over 500 children were selected from all strata of life, as stated in the clinical report of the committee.

The groups comprising the committee met at the Phipps Institute, Philadelphia, March 3rd, 1922. Prior to this meeting there were misgivings as to the possibility of an agreement upon any very definite conclusions, but much to the satisfaction of all the members a definite agreement was reached and the conclusions were completed after a few hours' careful deliberation.

Conclusions.

The Normal Chest.—The normal chest of the child from the rontgenologic standpoint is subject to such wide variations within normal limits as to be beyond the possibility of exact description.

Hilum Shadow.—The conglomerate shadow, commonly called the hilum shadow, when found lying entirely within the inner third or zone of the lung area can be disregarded (or regarded as normal), except where it is made up of a solid mass of homogeneous shadow giving undoubted evidence that it represents a growth or mediastinal pleurisy.

Calcified Nodes.—Calcified nodes at the root of the lung, without evidence of lung disease, are of no significance except as a possible evidence of some healed inflammatory condition, possibly but not necessarily tuberculous. They are a common finding in normal chests.

Density and Thickness of Trunk Shadows.—In the normal lung the bronchial trunk shadows are not visible in the extreme apical regions. For convenience of description the remainder of the lung is divided into three vertical zones, extending outward from the lateral border of the spinal shadow to the lateral chest border. The inner zone contains the root shadows. The mid zone contains the trunk shadows, gradually fading out into their final subdivisions. The peripheral zone contains radiating lines from these and fading off before the periphery is reached. Where in the mid zone or peripheral zone these shadows do not disappear in the characteristic fashion described, the appearance may be evidence of a variety of conditions, past or present, of an inflammatory nature or otherwise. It may accompany a tuberculous process, but is not necessarily indicative of tuberculosis.

Improper or Misleading Terms.—The use of the terms "peribronchial tuberculosis" and "parenchyma tuberculosis" is not to be recommended in the interpretation of rontgenograms of the chest. Until corroborated by laboratory or clinical findings, the use of the terms "active" and "quiescent" should not be definitely applied to evident lesions demonstrated on plates.

(Signed) HENRY K. PANCOAST.
KENNON DUNHAM.
May 6th, 1922. F. H. BAETJER.

THE LANCET.

LONDON: SATURDAY, JULY 8, 1922.

The Official Spirit in Medicine.

INDIVIDUALISM is the key-note of medicine, and we believe that thus it will remain. The Hippocratic oath, which has guided medical practice for 2000 years or so, although no longer formally administered, still binds the individual doctor in the presence of the individual patient to use all his care and skill to relieve that patient's need without fear or favour. There is no third party to this contract, which forms the basis of the patient's confidence on the one hand, and of the joy in professional services rendered on the other. No one who has served an apprenticeship to medicine in any capacity doubts the essential rightness of this personal relation with the initiative and responsibility that go along with it. Sir JOHN TWEEDY from his consulting-room (which would, by the way, in America be called an office), writes that any change that restrains the liberty or lessens the responsibility of a medical man, or hampers the free play of his intellectual activities, will be detrimental to the authority and usefulness of medicine. Sir GEORGE NEWMAN writes from his office (which is, in one sense, very much a consulting-room) that the social and individual relationship between doctor and patient is invaluable in the treatment of disease. And Sir CLIFFORD ALLBUTT breaks off a valuable article with Dr. P. C. VARRIER-JONES on Colony Treatment, in our present issue, to quote these two concordant opinions from what he calls the two camps of medical men, and to interpolate an excursus on officialism in medicine. Official interference, he assures us, between the patient and his medical adviser brings in elements of mistrust. That is certainly the feeling of the practitioner, and it is a feeling implanted in our ethics and our practice.

Now what, it may be asked, is the actual nature of this official attitude which may blight the practitioner's resourcefulness and adaptability and dissipate the coöperative spirit of medicine? Lack of tact or imagination, Sir CLIFFORD ALLBUTT admits, is no fault of the official; the fault lies rather in the system under which he works. The public health official is himself hampered at every turn, he cannot move forward without the sanction of a lay committee which may take months to secure; so gradually, it is alleged, he adopts the official attitude and becomes a drag on the healthy activities of his practising colleagues. It would not be human nature if this were not true in certain instances. Each discipline of medicine is liable to be visited by the slackness and inertia which are the common heritage of all professions. But the achievement in the last 20 years of some of the large provincial sanitary authorities, and the remarkable springing of new life within the Society of Medical Officers of Health since the war, effectually dispose of the contention that the blight of officialism is inherent in the public health service of this country. It may take an administrative health officer much of his time and energy to carry with him the other sections of the community which he serves. He cannot do so without educating them in the broad outlines of healthy communal living, so gaining their confidence in his methods, any more than the individual practitioner can bring his influence to bear on the personal habits of his patient without first gaining his confidence. And there is another axiom in public health service: the communal physician, as we may call him, can hardly hope to achieve his purpose without the coöperation of all those who are ministering to the health of the members of the commune. Dr. E. W. HOPE, in addressing the Royal Institute of Public Health at Plymouth recently on the Unification of Local Health Administration, in which he has himself been so successful at Liverpool, showed some of the truly great results which accrue from the harmonious working of medical, educational, and social elements in an area which has become conscious of its own deficiencies and needs. The interference which he had to deprecate was that of a central authority trying to administer local details on a uniform plan remote from knowledge of local conditions and interests.

What should be implied by individualism in medical conduct is coming to be better understood. For nothing need intervene between the practitioner and his patient; both are responsible units of the community in which they belong, and in his individual dealings with his patient the modern practitioner, holding the scales evenly between preventive and curative medicine, will advise him in his dual rôle of individual and member of a social community. While we frankly recognise with Sir CLIFFORD ALLBUTT that in various districts there may be warring elements, there need not in the nature of things be any antagonism between individual and official medicine. The consulting-room and the office both have their infirmities, but their coöperation should be assured by elimination of the official attitude from the one and the other.

The Estimated Population of Health Resorts.

WHEN Census enumerations of the population occur at decennial intervals estimates of the population of any county or sanitary district during the intermediate years are very liable to error. Any district in question may become rapidly prosperous or its prosperity may wane; or its available area may have become occupied by new houses and its population, swarming into neighbouring areas, may fail to be included in the estimate of the population of the area of origin. The method of estimating populations adopted until recent years was to assume that the rate of increase in the previous intercensal period has since been maintained. This method is unlikely to lead to considerable error for the entire country; but for many towns it gives most erroneous results, and the Registrar-General has fallen back on methods of estimation which take several factors into account. Such a modified method, from the standpoint of the General Register Office, needs to be applied consistently for every locality, even though it operates somewhat capriciously in a minority of cases. The necessity for this arises because the aggregate of the local estimates must equal the estimate for the entire country.

For health resorts the official method is especially liable to error, and it is not surprising that the authorities at these resorts have protested against the reduced estimates of population made for them by the Registrar-General. It is common ground that the

population required is the resident population—i.e., the population having no other home address than that in which each person is enumerated. Here at once a difficulty arises, for many residents in hotels and boarding houses are classed as visitors, although they have no home address, and although, if they died, their deaths would be assigned to the health resort in question. Furthermore, the Census was taken in June, 1921, during the coal strike, and in a spell of fine weather, when an abnormal proportion of the population of the great industrial centres were at holiday resorts. The result was that the Census showed during the decennium 1911–21 an increase of 9 per cent. for Brighton, of 20 per cent. for Eastbourne, of 50 per cent. for Southend-on-Sea, and of 84 per cent. for Llandudno. The actual populations enumerated at these health resorts were greatly reduced for intercensal purposes by the Registrar-General—Brighton, for instance, by 5 per cent., and Eastbourne by 14 per cent.—in deciding the proportion of the enumerated population to be regarded as resident. Dr. D. FORBES, the medical officer of health of Brighton, urges that the local health officials should have been consulted before these central estimates of population were made, in view of the special information in possession of these officials. There is force in this contention; but it would have been difficult for the Registrar-General to justify the limitation of such a reference to health resorts, and there is little doubt that in very many areas, had he invited observations, he would have been overwhelmed with impracticable recommendations.

But we would suggest that towns feeling a grievance in this matter should utilise the power given them by the Census Act of 1921 to arrange with the Registrar-General for an intermediate local census; and that medical officers of health should in their annual reports give a reasoned statement of their own estimates of the local population, supplying death-rates based on these estimates as well as on the officially estimated population. It is true that these locally estimated death-rates do not receive the publicity of the Registrar-General's returns; but to an increasing extent it is becoming appreciated that comparisons with the past experience of the same district are more significant than unstandardised comparisons with other districts, and that comparisons of specific are more significant than comparisons of general death-rates. Among all these specific death-rates, the number of deaths under one month and the number under one year per 1000 births are of supreme importance for comparative purposes; and the death-rates, being based on births locally registered and not on estimated population, are free from ambiguity.

The Radiographer on Trial.

Two hypotheses connected with pulmonary tuberculosis are designed to bring us appreciably nearer to its conquest. The first—the ANDVORD-RÖMER hypothesis—refers pulmonary tuberculosis in the adult to infection in childhood. The second assumes that the pulmonary tuberculosis which breaks out in the adult is not only demonstrable in childhood, but is also quite distinct from that minor degree of tuberculous infection which remains latent throughout life. An inevitable corollary to both hypotheses is the importance of early detection of tuberculous changes in the child's chest. So far, and in principle, the matter is simple. As soon, however, as we attempt to distinguish beyond peradventure between the healthy and tuberculous chest in childhood, we find ourselves in a maze of contradiction. For some years the clinician, baffled by the inadequacy of clinical signs and symptoms, has been turning to the radiographer for help. The latter has responded with numerous radiographic signs indicative, if not actually pathognomonic, of pulmonary tuberculosis. But it can hardly be claimed that the clinician's confidence in the radiographer in this matter has grown with the number and complexity of his signs. In his recent book on "Pulmonary Tuberculosis" Sir JAMES KINGSTON FOWLER has played the part of the ingenuous infant who, in one of HANS ANDERSEN'S fairy tales, refuses to see the Emperor's fictitious new clothes. He defines hilum tuberculosis as "a 'shadow' first seen in a darkened room and not yet clearly recognised in the daylight of the post-mortem room." He adds the sweeping opinion that "any 'shadow' that attempted to force its way in quickly departed, a 'shadow' as it came." To this breezy and whimsical verdict he contributes the more convincing testimony of investigations made by himself and the late Mr. C. R. LYSTER during the latter part of the war. A comparison of the clinician's with the radiographer's findings in the same material showed that "in no case did the X rays indicate the presence of unsuspected disease." It is, however, well to bear in mind, when the radiographer is held up to ridicule and reproach, that his aid was in the first instance sought largely because the clinician was often at fault; and one by one clinical signs have been tested and found wanting as pathognomonic of tuberculosis.

The post-mortem room is, in general, a valuable check on diagnoses made from imaginative inferences. But when we are dealing with the beginnings of disease, and the lesions under consideration are not fatal, other means for verifying our diagnoses must be sought. In this connexion an important series of investigations is reviewed in our present issue (p. 78). The National Tuberculosis Association of the U.S.A. has for some time realised the necessity for acquiring accurate knowledge of the X ray picture and of the physical signs in the lungs of healthy children. Only after this knowledge has been acquired can the significance of signs indicative of disease be appreciated. This statement is, of course, a truism. Yet like many another elementary truth it is too often ignored. Another line of research followed by this Association has been the systematic correlation of X ray with clinical findings. Neither being absolutely reliable, checking one by the other is naturally an imperfect method of arriving at the truth. But, in the absence of a third and unimpeachable standard for comparison, this criterion is the best that can be devised. Neither method emerges from the ordeal with flying colours; D'Espine's sign and many another weapon of the clinician are found wanting by the American investigators, and on the other hand the "peribronchial" and "parenchymatous" tuberculosis of the radiographer come in for criticism tantamount to condemnation. And the radiographer who, in the absence of laboratory and clinical corroboration, ventures to distinguish between "active" and "quiescent" disease is advised of the untenability of his position. To self-sufficient clinicians and radiographers—if they exist—these findings must be unpalatable. They are, however, of a helpful and constructive character, emphasising as they do the importance of employing not one but every means before venturing on a definite diagnosis. Another finding to which we would draw attention is the width of the limit within which a child may show various signs and yet be apparently healthy. Children may be to all intents and purposes quite well, symptom-free,

and active, and yet show many deviations from fixed standards. These deviations probably fall within physiological limits, and unless these limits are kept sufficiently wide and elastic the error of confusing health with disease will often be committed. Let us bear in mind, as the spokesmen of the U.S.A. National Tuberculosis Association put it, that "clinically, the ideal, normal child is a hypothetical impossibility."

Annotations.

"Ne quid nimis."

ROYAL COLLEGE OF SURGEONS OF ENGLAND: CONSERVATOR'S REPORT.

Sir Arthur Keith announces in his annual report that negotiations have been concluded between the Secretary for War and the President of the College, by which the Council of the College has been made custodian of the Army Medical War Collection. The College becomes responsible for the housing, displaying, completion, upkeep, and cataloguing of all that pertains to the Collection. The Government has paid to the College the sum of £7500, part of which will be spent in providing new accommodation for the Collection, and part will be invested to provide an annual sum to assist in upkeep. The Collection is not only a valuable historical record, but is designed to meet the needs of army medical officers and will be at the disposal of the professors at the Royal Military College, Millbank. The Collection will form an intrinsic part of the museum, and the conservator acknowledges the liberality and sympathetic interest which the present Director-General, Sir John Goodwin, and his predecessor, Sir Alfred Keogh, have extended to the Council and to the officers of the museum. The preparation and description of specimens has fallen to Prof. S. G. Shattock and Mr. Cecil Beadles, the value oi whose services cannot be exaggerated. Sir George Makins has undertaken the classification and description of the drawings in the War Collection, mostly made by Mr. A. K. Maxwell. Extensive alterations in the buildings are being made mainly to allow of the construction of a large room suitable for the accommodation of the entire War Collection, according to plans by Mr. E. C. Frere.

Much valuable research work undertaken in the museum is duly acknowledged in the report. A full description of the features of the skull of Sir Thomas Browne, of which a cast has been made, will appear shortly in *Biometrica*. The Onodi collection is being described and catalogued by Mr. T. B. Layton. Among the additions to the pathological collection, Prof. Shattock announces a specimen of the arch of the aorta, showing successful ligation of the innominate artery, all its coats being left intact, presented by Sir Charles Ballance, and an embryoma in the form of a hydrocephalic head in an ovarian cyst removed by operation from an infant, presented by Mr. C. E. Shattock. The catalogue of the obstetrical and gynæcological instruments, mostly those which made up the museum of the Obstetrical Society of London, prepared by Mr. Alban Doran, has been printed.

The annual show of the additions to the museum will be held between Oct 9th and Nov. 10th, both dates inclusive.

ULCERATING GRANULOMA.

A RARE example of ulcerating granuloma in a syphilitic patient, an American of 31, is reported by Drs. M. B. Parounagian and H. Goodman, of New York,[1] the paper being illustrated by several photographs showing the unusual distribution of the lesions. In this case the disease was by no means confined to the inguinal region as the usual synonym suggests. The upper lip, the side of the neck, the groin, the anus, and the gluteo-femoral clefts were the seat of hypertrophic, discharging, ulcerating, and foul-smelling nodular masses, with some evidence of cicatrisation, and with œdema of the penis and scrotum. There was no glandular enlargement in connexion with any of the lesions. Tuberculosis and malignant growths were ruled out as clinical possibilities on a microscopic examination, and in the absence of Donovan bodies, which could not at that time be demonstrated, the patient was put upon antisyphilitic treatment (silver arsphenamin and neo-arsphenamin), in spite of a negative Wassermann. Although further Wassermann tests became persistently and increasingly positive there was no such clinical improvement as to warrant a diagnosis of syphilis for the lesions, and after a short period, during which the patient was lost sight of, he was presented before the Section on Dermatology of the New York Academy of Medicine as a case of ulcerating granuloma in a syphilitic patient. Later still, the diagnosis was confirmed by smears which showed numerous extra-cellular, encapsulated, short bacillary forms resembling Donovan bodies, as well as intra-cellular bodies. Microscopic examination of a specimen from the edge of one of the masses in the groin showed the presence of "hypertrophic epithelial papillæ which dipped down into the underlying connective tissue for considerable distances, in places dividing and subdividing." The connective tissue itself was sclerotic, and showed numerous fibroblasts with collections of degenerate polymorphonuclear leucocytes. There was no histological evidence of epithelioma, tuberculosis, or syphilis. The patient, unfortunately, did not return to the clinic, and treatment with tartar emetic could not be instituted. The chief points of interest about the case are first, the fact that the patient was a white man who was born and had lived all his life in New York City, and secondly, the distribution of the lesions, the authors stating that there has been published only one other instance of the disease with lesions about the lip—the case reported by Sequeira in 1908.

[1] Archives of Dermatology and Syphilology, May, 1922.

UNVEILING OF THE R.A.M.C. MEMORIAL.

THE Duke of Connaught, Colonel-in-Chief of the R.A. Medical Corps, will unveil the memorial tablet in Westminster Abbey at 12 noon on Thursday, July 13th. It is hoped that a large number of the subscribers to the memorial will be present. Seats can be obtained by written application addressed to R.A.M.C. Memorial, Room 314, War Office. Service uniform, academic robes, or morning dress will be worn. The Abbey will be open to the general public at 11.30. It will be remembered that the R.A.M.C. Memorial Fund has made a contribution of £10,000 towards the restoration of the Abbey. The tablet records the fact that the names of the fallen are inscribed in a "Golden Book" placed in the Chapter House.

A YEAR'S WORK IN FRANCE ON INFECTIOUS DISEASES.

IN a recent number of *Paris Médical*[1] Dr. Dopter briefly reviews the chief advances made during the previous year in the study of infectious disease. With regard to *enteric fever* the question of the value of prophylactic vaccination has been raised by Chauffard, Achard, Sergent, Loire, Legangneux, and others, all of whom remark on the vastly greater incidence of typhoid in France among women and youths below the age of military service. Dopter finds that the facts and figures collected suggest the urgent need for preventive inoculation of the civil population, while he admits that inoculation can hardly be made compulsory except for the personnel of the staff in charge

[1] June 3rd, 1922.

of typhoid patients. For the general population a campaign of education and persuasion is indicated, largely in order to counteract the dread—amounting to a phobia—of the severe reaction which occasionally follows inoculation. Work on *bacillary dysentery* has also mainly taken the form of studies on prophylactic vaccination. H. Vincent inoculated 2175 subjects with a polyvalent ethero-vaccine, the doses given (500 to 700 million bacilli) resulting in a decline in susceptibility to invasion by Shiga's bacillus, as shown by an incidence rate of 16 per 1000 in the vaccinated persons compared with 228 per 1000 in the non-vaccinated. An interesting development has been the work of Nicolle and Conseil, who demonstrated the possibility of protective inoculation via the digestive tract. The two subjects who voluntarily underwent the experiment were given by mouth for three consecutive days cultures of Shiga's bacillus, sterilised at 75° C., and on the fifth day 100,000 million bacilli, preceded and followed by six hours of a special diet. Fifteen and eighteen days later the subjects were injected with 10,000 million bacilli from virulent cultures of Shiga's bacillus, no evil effects following. Dysentery contracted by control subjects who had not been vaccinated was immediately arrested by anti-dysenteric serotherapy.

Epidemic Encephalitis.—While no important clinical data have been recorded in France new biological facts have come to light, these including the discovery by Levaditi, Harvier, and Nicolau of the presence of the specific virus in the buccal cavity and the saliva of healthy subjects; and, by the same observers, of the identity of Grüter's virus of corneal herpes, and of Loewenstein's and Doërr's virus of herpes labialis with that of epidemic encephalitis, the only difference between them being that of degree of virulence. These and kindred facts, the importance of which from an epidemiological point of view is incontestable, suggest that, properly speaking, there is no such thing as an epidemic of encephalitis lethargica, but that epidemics of rhino-pharyngitis, clinical or bacteriological, may occur, caused by a specific virus and complicated at times by an encephalitis.—*Diphtheria* is discussed mainly under the three heads of Schick's reaction, the reliability of which Dopter looks upon as doubtful and needing further confirmation; prophylactic anti-diphtheritic vaccination, the value of which is heavily discounted by the difficulty of determining the optimum dose owing to the widely differing individual sensitivity; and anti-diphtheritic serotherapy. The oral route has been found to be useless; intravenous injection is useful in severe cases in which immediate action is called for; intramuscular injection has its place in the same class of case, but with both methods the antitoxin is eliminated too rapidly to avert late complications. Subcutaneous injection remains the route for choice in the large majority of cases. On the question of diphtheritic palatal paralysis, de Lavergne has recently shown that (*a*) anginal paralysis following an inflammation of the underlying mucosa may be averted by the use of early and large injections of antitoxin; (*b*) early paralyses should also be treated by means of large doses; (*c*) in late paralyses a Schick test should be done, and serum given in all cases in which the reaction is positive.

Under the heading of *meningococcal infection* reference is made both to the new technique devised by Dopter and Dujarrie de la Rivière for the rapid bacteriological diagnosis of this condition, and to various interesting cases that have been reported during the year, including a rare case of abscess of the temporal lobe following on a mastoiditis of meningococcal origin. — *Whooping-cough.* Dopter recalls Meyer's experiments on the length of time during which the specific organism is eliminated by the patient, these researches demonstrating that by the fourth week only 10 per cent. of positive results could be obtained, and after the fifth none but negative results.—*Measles.* The only point discussed by Dopter under this heading is the work done by Nicolle and Conseil on the prophylaxis of measles by the injection of the blood or the serum of convalescents, a method which is obviously of limited application. In *scarlet fever* further researches have been carried on with the Schultz-Charlton so-called extinction test, experiments also having been conducted by Saloz and Schiff with a view to obtaining a diagnostic complement-fixation test, in which experiments they claim to have been successful, the antibodies disappearing on the thirty-fifth day.

The review bears out Dr. Dopter's opening remark that, while no outstanding discovery regarding infectious diseases was made in France during 1921, much interesting and suggestive work was done.

ORIGIN OF COLLOID IN THE THYROID.

Dr. H. M. Woodcock tells further of his work on hæmatophagy and hæmatoboly in the *Journal of the R.A.M.C.* for June. He admits his conclusions are novel and not yet accepted, but he suggests that when so much work is being done on cells, and particularly in the investigation of cancer, a protozoologist, such as himself, accustomed to investigate life-histories by a static method, is particularly suited to report on the precise behaviour of cells of the more complicated human organism. In this contribution he discusses colloid formation in the normal thyroid and in an adenoma of the thyroid. Metchnikoff, himself a protozoologist, noted that a red corpuscle ingested by a cell might appear as a colourless vacuole, but he did not know that, having first lost in this way its staining reactions, it might undergo further change and again acquire an affinity for stains. Metchnikoff also noted that red corpuscles in contact with one another are apt to run together during metabolism. And these things happen in the thyroid where the colloid appears to be formed from red cells that have escaped into the acini, and have been metabolised by a ferment secreted by the nuclei of the epithelial cells. They stain well at first, then losing their colour and staining reaction, and later gradually reacquire this as they are being turned into colloid. The iron of the corpuscles becomes iron in the colloid material, and the stages through which this blood change is developed are beautifully shown n the photomicrographs for which Dr. D. J. Reid is responsible. In the thyroid this change occurs only in the acini, but in the benign adenoma it also occurs in the inter-follicular tissue, in the capillaries, whereby new acini are constantly being thus produced.

ACTIVE IMMUNISATION AGAINST DIPHTHERIA IN ADULTS.

WHILE many reports have lately been published on the successful immunisation of children against diphtheria by the toxin-antitoxin method—a success which has repeatedly been confirmed by subsequent Schick tests—no such studies on groups of adults have been reported. This lacuna has now been filled by Dr. J. V. Cooke, of St. Louis,[1] who has recently given the results of a systematic immunisation over a period of four years of the susceptible individuals in a nurses' training school, all of whom were on duty for one or two months in the infectious wards of a children's hospital as part of their training. Of 147 nurses on whom a preliminary Schick test was done, 86, or 58·5 per cent., gave positive reactions, Dr. Cooke suggesting that this high proportion of non-immune individuals was due to the fact that most of them had been reared in small communities where diphtheria is much less prevalent than in cities, contact with the disease probably playing an important part in the development of immunity. Sixty-two of the nurses showing a positive reaction were given three subcutaneous injections of toxin-antitoxin mixture with a week's interval between each, and the Schick test repeated

[1] American Journal of Diseases of Children, June, 1922.

four months later, when 47, or 75·8 per cent., were immune. Two more cases gave a negative reaction nine and fifteen months after the injections, 8 of the remaining 13 receiving a second series of three toxin-antitoxin injections, after which 5 still remained persistently positive. The result of the immunisation was to effect a decrease in the incidence of clinical diphtheria among these nurses of at least 90 per cent. as compared with a previous three years' period. The local reactions following the injections are said to have been similar to those following prophylactic typhoid vaccination, and in only two cases were the constitutional effects at all severe, although several complained of listlessness and headache. Dr. Cooke concludes by emphasising the fact that it is relatively easy to protect an entire nursing staff from contracting diphtheria by the use of the Schick test and toxin-antitoxin injections.

ECONOMICS OF RURAL PRACTICE.

IN the issue of *Health* dated July 1st appears an article entitled "Taxation and the Country Doctor," pointing out that whilst the rural practitioner is in most ways no more taxed than his colleagues in the towns, his transport problem is a serious one entailing considerable expense. The lightest and oldest car is heavily taxed; frequently a motor-bicycle is the only means of conveyance for a man who finds his life already strenuous enough without such an additional strain. Holidays and illness are complicated by the difficulty of rapidly obtaining a locum-tenent who combines experience and steadiness in his profession with the ability to ride a motor-bicycle. The locum-tenent of middle age, indeed, can be seriously hampered by lack of mechanical knowledge in this respect, whatever may be his professional skill. Another condition of the times which aggravates the economic position of the country practitioner is the difficulty of the vegetable garden:—

> "That feature of the countryside, 'the doctor's man,' who drove the car, cultivated the potatoes, mothered the locum-tenent, and knew all about the income and private life of every person in the district is, alas! becoming almost extinct. A jobbing gardener and a boy from the garage twice a week are poor substitutes for a professor in an honoured and unique position, who often served three or four successive masters in the same practice and earned the gratitude of them all."

An appreciable amount of rural unemployment, it appears, results from the frequent inability of doctor and parson to employ a whole-time man at the present day, and the reasonable suggestion is made that it might be wise to allow a rebate on the income-tax of any person employing a servant who can be shown to devote a reasonable portion of his time to the care of fruit, vegetables, pigs, and poultry.

THE ANATOMICAL STRUCTURE OF THE STOMACH.

AT the summer meeting of the Anatomical Society, held in Edinburgh on July 23rd, Mr. Geoffrey Jefferson read a suggestive paper entitled "Some Remarks on the Anatomical Structure of the Stomach with special reference to Gastric Function." After a brief description of the gastric mucosa, the speaker passed on to the musculature, and demonstrated by means of photographs of dissections that the external coat appeared to be derived from three sources; (1) the coarse fibres from the œsophagus deploying on to the stomach; (2) much finer fibres which appear to arise in the course of the organ; and (3) fibres continuous with those of the duodenum. The strong bands on front and back of the pars pylorica, the ligamenta pylori, were illustrated, together with their adhesion to the circular muscle fibres beneath. These form important intrinsic supports to this region, and are plentifully interspersed with elastic tissue. The circular musculature was seen to consist of interwoven fibres and not of rings applied in contiguity. This arrangement, according to Mr. Jefferson, was to be expected, since the best evidence showed that the peristaltic wave was myogenic in its origin and nature. The connexions of the oblique muscle were next figured, and this coat was shown to be a derivative of the circular muscle. The laying down of a third coat over the cardiac portion of the viscus required some explanation, for in general in the alimentary tract the processes of digestion are satisfactorily carried out by two coats only—an inner circular and an outer longitudinal. Why should the stomach have three, and why should this third coat be applied to a part of the stomach which is relatively muscularly inactive? Mr. Jefferson believed the answer to be that this coat is in large degree suspensory, that the activity of the gastric musculature is partly static or postural and partly phasic or peristaltic. These activities are interchangeable between the various coats in different bodily postures, the oblique coat taking on peristaltic powers for instance in recumbency. Mr. Jefferson does not think that the existence of a functional "gastric canal" can be said to be established, although the longitudinal bands and the inner views of the organ which he displayed in his photographs were very suggestive of its presence and presumably of its functioning—at any rate partially—during life.

PLANT PATHOLOGY.

THE historical evolution of pathology in this country has led to its development along a rather narrow track starting in the post-mortem room, and only now branching out into some of the many lines of obvious expansion. This restricted outlook is especially plain in bacteriology and parasitology in general. Bacteriology with us means hardly more than the study of the relatively insignificant number of organisms of immediate medical and hygienic import. General laws can never be discovered from such a limited outlook. The wonderful interest of comparative pathology—and by this we mean something more than the veterinary technology which sometimes masquerades under the title—has yet to be appreciated. The wealth of material at the Zoo still remains almost unused, and Sir James Paget's plea made many years ago seems to have had as little response as Sir John Bland-Sutton's more recent demonstrations of what may be found in other animals to elucidate the processes of human disease. In plant pathology there are welcome signs of more active interest. Readers of THE LANCET will recall the interesting lecture by Prof. V. H. Blackman[1] on the processes of immunity and resistance in plants as compared with animals, and at the forthcoming annual meeting of the British Medical Association at Glasgow a special Section of Microbiology apart from medical bacteriology will discuss kindred problems with a lead from Prof. Blackman and Dr. W. B. Brierley, head of the Department of Mycology at the Rothamsted Agricultural Experiment Station at Harpenden. The origin of this new section of the Association may perhaps have some connexion with the fascinating work done by its president on the growth and shedding of the deer's antlers.

The plant pathologist can doubtless get a good deal from the highly developed specialised technique of the medical pathologist, who in his turn can probably get more from the far wider and more varied field with which his botanical colleagues deal—"colleagues" unfortunately in theory rather than practice. The facility with which a worm-hole in a potato is lined with skin recalls the behaviour of the epidermis in a sinus, and raises the whole question of wound-healing, Prof. S. G. Shattock's paper on which is a rare example of one of our animal pathologists making an excursion into the vegetable world. The galls produced by hymenopterous and other parasites on plants are the most exquisite examples of specific anatomical responses to specific stimuli: animals

[1] THE LANCET, 1921, ii., 935.

furnish only imperfect counterparts to their specific chemical responses. The mechanisms of defence and survival of species of plants in general are in parallel with those employed by the parasitic bacteria in developing virulence and resistance to the defence of the mammalian body.

Very welcome, therefore, is a book [2] planned by an expert medical bacteriologist with the avowed intention that his fellows should inform themselves of a number of things which they ought to know about. It is an attempt to look at parasitic diseases of plants from the point of view of human medicine—an attempt that is to bring together two lines of thought which are much farther apart than they should be. The intention being so admirable, it must be confessed that the performance is disappointing. The authors have proposed to cover much in a small space, and the result partakes of the nature of a catalogue which, in the absence of any illustrations, will, we fear, be hardly intelligible to those who know nothing of the subject already. A few instances treated in more detail and with adequate pictures would have better achieved the author's aim to introduce a most important subject to a wider audience. MM. Nicolle and Magrou do not realise that many of us have not their own range of acquaintance with the animal and vegetable world. Research on diseases of plants in this country is carried out principally in the laboratories of Prof. Blackman at the Imperial College of Science, London, and perhaps more especially in those of Dr. Brierley at the Institute of Plant Pathology, founded in 1919, at Harpenden. The meeting ground of workers on these problems is the Association of Economic Biologists, which holds eight meetings during the year, at which medical men are welcomed. The last meeting was held on June 30th at the Royal Horticultural Society's Gardens, when the investigations in progress on plant diseases were demonstrated.[3]

MALIGNANT DISEASE AND LEUKÆMIA.

AN interesting chapter of the cancer problem is presented by the experimental differentiation between true neoplasms and the infective sarcomata of the fowl, studied by Peyton Rous and Fujinami. From the purely morphological point of view these tumours are indistinguishable from sarcomata, but their experimental investigation has shown that they differ from true neoplasms in having an undoubted infective origin and being of the nature of infective granulomata. This fundamental distinction is based on the following experimental observations: When a few cells of a true neoplasm such as a carcinoma of a mouse or rat are introduced into a new animal a new tumour forms, the cells of which are derived entirely from the inoculated cells. But with such a tumour as the infective sarcoma of the fowl, a new tumour will arise even if the new animal is inoculated not with the living cells of the tumour, but with the dried tissues or with a cell-free filtrate. The cells of this new tumour must therefore be derived from the cells of the inoculated animal. The hyperplasias of lymphoid tissues have always presented this difficulty of distinguishing on morphological grounds whether they are of the nature of true neoplasms or whether they are cell proliferations of the nature of granulomata. Certain forms of lymphomata have always been recognised as belonging to the latter class and as having a bacterial origin, others resemble true malignant new growths so closely that they have been classed with them. Experimentally, no transplantable lymphosarcoma has as yet been recorded, although lymphoid hyperplasias are found occasionally in mice. These lymphomata of mice when cut out and retransplanted do not grow even in the animal spontaneously affected, while true neoplasms almost always grow if removed from the animal in which they originated and retransplanted into it. This experimental evidence, therefore, points to a fundamental difference between these lymphoid hyperplasias and true neoplasms.

Further experimental evidence of the bacterial origin of these lymphoid hyperplasias is brought in a recent paper by Dr. J. Young,[1] who has succeeded in inducing a widespread lymphoid hyperplasia in mice by the injection of organisms. The organisms were obtained originally from carcinomatous material and also from cases of leukæmia in man. Both human carcinomata and mouse carcinomata yielded these organisms, which are described as being very pleomorphic. The term pleomorphism has been invoked in the past so often to cover a multitude of bacteriological sins that one looks for some evidence which would exclude the possibility that in this case the organisms were not a mixture. No convincing evidence of this kind is given and further work along these lines seems desirable. Unfortunately, Dr. Young spoils a good case by coupling it with a bad one. He has set out to prove that the cell proliferation of true neoplasms can be explained as being caused by an organism which passed one phase of its life-cycle in the nucleus of the cancer cell and in division was conveyed to the daughter cell. The fact that organisms isolated from true neoplasms induce cell proliferation in lymphoid tissue he looks upon as evidence supporting his view. He also found that in two of his infected mice, mammary carcinomata developed "in the neighbourhood of the site of injection," and quotes this fact with some reserve as further evidence.

Twenty years ago observations of this kind would indeed have been accepted in Dr. Young's sense. But since then the experimental work on cancer has deepened the fundamental distinction between the cell proliferation of a granuloma and the autonomous growth of a true neoplasm. There is urgent need to study by experimental methods the interesting group of tumours which lie, morphologically speaking, on the border between the two. Recent work on the experimental production of cancer has opened up the possibility that a true neoplasm may arise on the basis of a cell proliferation of bacterial origin. But we are not likely to advance our knowledge of cancer by arguments and deductions which ignore the fundamental distinctions between the two.

ENTERIC FEVER AT BOLTON-UPON-DEARNE.

THE Ministry of Health has recently published a report by one of its medical officers, Dr. W. V. Shaw, upon an epidemic of enteric fever occurring in 1921 in and around Bolton-upon-Dearne, in Yorkshire. The report gives a clear and interesting summary of a remarkable outbreak. Between the middle of July, 1921, and the end of that year there were 397 cases of enteric fever notified in this outbreak, of which 351 were in the Bolton-upon-Dearne Urban District, 33 in the Darfield Urban District, 11 in the parish of Great Houghton, and 1 each in the parishes of Little Houghton and Billingley. The districts in question are all situated on the Yorkshire coalfield, and are for the greater part undermined by collieries. Investigation of the various factors which might conceivably have caused the outbreak showed conclusively that the infection was not conveyed either through the sewerage system, or through milk, green foods, ice cream, or shellfish. The water-supply, on the other hand, was directly implicated. In considering this point it is necessary to bear in mind that in Bolton-upon-Dearne Urban District there were two distinct outbreaks, the earlier—involving in that district 91 cases—coinciding in time with the outbreak in Darfield, Great Houghton, Little Houghton, and Billingley; while the second outbreak, in October and November, involved 260 known cases, and was limited to the village of Bolton-upon-Dearne itself.

[2] Les maladies parasitaires des plantes. By M. Nicolle and J. Magrou. Paris: Masson et Cie. 1922. Pp. 199. Fr.8.

[3] The more important papers on the subject are published in the Annals of Applied Biology, Cambridge University Press.

[1] James Young: Further Investigations into the Ætiology of Malignant Disease and Leukæmia, Edinburgh Medical Journal, June, 1922.

The area of the districts involved in the first outbreak is coincident and coterminous with the area served with water by the Dearne Valley Water Board from a supply obtained from the water filtering into disused workings at the Dearne Valley Colliery. The water from these old workings is collected in an artificial pound of brick and concrete, whence it is pumped to a treatment tank designed to free it from an excess of sodium carbonate. From the treatment tank, after sedimentation and some degree of filtration, the water is delivered through mains to the various parts of the district. No definite cause for pollution was discovered, though analysis gave evidence of such pollution. The gathering area, however, above the old workings of the colliery showed that the ground was mainly arable land in cultivation, the villages on it having largely conservancy methods of sanitation, while a wood in the area was much fouled during the coal strike, between April and July, 1921, by persons seeking fuel. The subsoil, consisting of sandstone, was extensively fissured during the hot, dry weather of June, 1921. While, therefore, the pollution cannot be directly proved, there are reasonable grounds for tracing the first outbreak to the water-supply, and the pollution of the water-supply to the access of infected matter from the gathering ground through the fissured stratum of sandstone. Chlorination of the water-supply led to satisfactory control of the first outbreak. Curiously enough, the chlorination appears to have contributed indirectly to the second outbreak, involving the village of Bolton-upon-Dearne alone. This village was at the end of the water main, and was insufficiently supplied with water. This fact, combined with the foolish prejudice of individuals against the chlorinated water, led a number to make use of the water from a pump drawing water from a shallow well in sandstone. It was shown that a quarry close to the well was much polluted with excrement, the sandstone being, moreover, markedly fissured; also that pollution of a neighbouring field as a result of a local fair had been a subject of complaint. Removal of the pump-handle speedily checked this outbreak, while an additional main was carried to the village by the water company to relieve the deficient supply. The urgent need for isolation hospital accommodation was in large degree met by a redistribution of the cases of infectious disease in the fever hospitals of the districts affected and of neighbouring authorities, and by the use of a school lent by the West Riding County Council. The nursing staff was reinforced by a number of the county council's health visitors, to whose assistance Dr. Shaw refers in appreciative terms.

The main lesson to be drawn from this interesting and extensive outbreak is one which has been impressed on public health authorities already many times in the past—the urgent need for making certain that public water-supplies are effectively safeguarded from all possible sources of pollution.

INTERNATIONAL ASSOCIATION OF MEDICAL MUSEUMS.

A SUCCESSFUL meeting of this Association has been held at the Army Medical Museum, Washington, D.C. A large attendance was present, including representatives of the medical service of the American and Canadian Governments. In his opening remarks the Chairman, Dr. James Ewing, of Cornell University, emphasised the growing importance of the Association because of its devotion to the interests of the science of morphology, which must ever remain the fundamental branch of medicine. A programme dealing with museum technique and morphological pathology was presented and discussed. Bulletin VIII. (Journal of Technical Methods) and Bulletin IX. (Sir William Osler Memorial Bulletin) were ordered to be published and will be distributed in the near future. Upon the recommendation of the Council, the Exchange Bureau and Bureau for the preservation of the results of medical research of this section of the International Association of Medical Museums was transferred from the McGill University Medical Museum to the United States Army Medical Museum in Washington, D.C. At the close of the scientific programme the meeting adjourned to inspect the large recent accessions to the Army Medical Museum and a series of special exhibits from members of the American Association of Pathologists and Bacteriologists and its conjoint societies, the International Congress of Ophthalmologists, the Canadian Army Medical Museum, and the Pathological Museums of Pittsburgh and McGill Universities, which had been set up in the spacious halls of the Army Medical Museum under the ægis of the International Association of Medical Museums.

The following officers were elected for the ensuing year:—President: F. B. Mallory, Boston; First Vice-President: H. T. Karsner, Cleveland; Second Vice-President: H. Marshall, Virginia; Third Vice-President: R. A. Lambert, Yale. Councillors: A. S. Warthin, Ann Arbor, Mich.: James Ewing, New York; W. T. Coplin, Philadelphia; W. G. MacCallum, Baltimore; William Boyd, Winnipeg; H. E. Robertson, Mayo Clinic, Rochester; Major G. R. Callender, Washington, D.C.; Major James F. Coupal, Washington, D.C.; H. S. Haythorne, Pittsburgh, Pa.; Carl V. Weller, Ann Arbor, Mich.; Stuart Graves, Louisville, Ky. Secretary-Treasurer: Dr. Maude E. Abbott, McGill University, Montreal. Assistant Secretaries: Dr. Harold Segall, Montreal; Dr. W. W. Beattie, Montreal.

An interesting feature of the afternoon session was the presentation of the testimonial from the Medical Department, U.S. Army, to Dr. Daniel Smith Lamb, assistant and pathologist at the Army Medical Museum from 1865–1920. The presentation was made by Brig.-General Walter D. McCaw, assistant surgeon-general, who, in a brief talk, outlined the work of Dr. Lamb and called attention to the results of his labours as illustrated by the collections of the institution in which the meeting was being held.

WOOD AS FOOD.

IN several places on the north coast of Siberia the natives eat wood, not because they must, but because they like it. Wood is generally eaten even when fish is plentiful, their favourite dish being prepared by scraping off thin layers immediately under the bark of larch logs, chopping them fine, and boiling them up with snow. It generally turns out that dietetic habits which at first sight seem curious have a rational basis. The virtues of cod-liver oil no longer rest on empirical experience and a vague idea that its efficacy was proportional to its nastiness; the reputation of fresh vegetables was gained in the days before the Dutch taught us to grow turnips and hardy cabbages, and when something like scurvy was an annual experience of the early spring. It is interesting to guess the reason for wood-eating. The cellulose which forms so large a part of a herbivorous diet is now recognised as being a subsidiary source of energy through the fatty acids produced in the stomach and bowels by cellulose-splitting bacteria. But the modified forms of cellulose which form the mass of tree trunks are hardly attacked by the bacteria of the alimentary canal. It is possible that the Siberians have by practice and habit so altered their intestinal flora that they can deal with lignin with advantage, but this seems a troublesome way of getting energy when fish and milk are available, and it appears hardly likely that the explanation of wood-eating lies along these lines. But if the habit suggests at the moment no rationale, it is curious to note that it falls in line with the tastes of some other animals. The fondness of rabbits for bark and the immediately subjacent tissues is well known; if the bark is young so much the better, and rabbits will often prevent regeneration of woodland from the stools of forest trees or coppice

which have been cut down. Everyone knows, too, that if they want an ash wand nicely cleaned they can get an admirable result by giving it to hutch rabbits—if the hutch is large enough to take it. It is, perhaps, worth noting, too, that these same invaluable experimental animals are peculiarly fond of hard, woody leaves—as, for example, holly, gorse, or hawthorn, and sometimes seem actually to prefer them to cabbage or milk-thistle. Ponies, also, are apt to be possessed of a devil or some curious appetite, and will set to work on big forest trees and kill them by cleaning off the bark and conducting tissues down to the hard wood. These and other examples of similar tastes suggest that there is something particularly good in the outer layers of trees, and it is natural to think that it probably resides in the young conducting tissues rather than in the outer bark. Of its precise nature it is idle to speculate. Perhaps the point will engage the attention of the experts in vitalimentation, who may be directed to an interesting note in the last number of *Food and Cookery and the Catering World*.

CONSERVATION OF WATER-SUPPLY.

A MEMORANDUM on conserving and supplementing existing supplies of water has been issued by the Ministry of Health to the county and district medical officers of health, together with copies of recent memoranda relating to chlorination and shortage of water. We have referred repeatedly to the various aspects of the problem presented by the droughts of 1921 and the beginning of 1922,[1] and little needs to be said to emphasise the existing necessity for prevention of waste, which forms the first subject dealt with in the above-mentioned memorandum. Authorities are urged to consider the advisability of organising special measures for the detection and prevention of all forms of waste. Division of areas of supply into zones, in order to avoid unnecessarily high pressure, is suggested; public warnings against waste are advised, and favourable mention is made of the possibility of replacement of defective washers by water authorities, free of cost to the consumer. With reference to restriction of ordinary consumption, an average of 16 gallons per head per day (exclusive of water used for trade purposes) is stated to be quite adequate in most towns under present conditions; in many places, however, the amount used is twice or thrice this figure, with no commensurate gain and much waste of pumping, power, and money. The use of potable water for manufacturing and sanitary purposes, when other supplies could be obtained, is discouraged, and the collection of rain-water by householders is strongly urged. Intermission of supply, whilst useful for saving water where houses contain storage cisterns, is not advised unless absolutely necessary. Wherever practicable, compensation water should be intermitted when not required for power or manufacturing purposes. As regards the supplement of existing supplies, the measures indicated for consideration are a pooling of the resources of neighbouring water authorities and employment of additional sources of supply, including water not usually intended for domestic use, but specially treated by means set out in Circular 241 of the Ministry of Health relating to chlorination. In this connexion it is not out of place to make mention of a precaution devised by the Health Department Laboratory of Chicago, U.S.A., for the protection of tourists and travellers on holiday in places where they cannot be assured of an altogether uncontaminated water-supply. Calcium hypochlorite tablets, containing each 20 to 30 mg. of chlorine, put up in glass phials and retaining their potency for about four weeks if kept lightly stoppered in a cool, dark place, are issued, together with directions for use, upon application at the City Hall. This solicitude for the health of the individual urban consumer should spur the rural authority to raise its standard of water-supply to that of the towns. Our own Ministry of Health, in a letter accompanying the memorandum referred to above, advises special attention on the part of medical officers of health to problems arising out of shortage of water-supply in districts unprovided with piped water.

[1] THE LANCET, 1921, ii., 353, 668, 671, 1234; 1922, i., 145, 148, 448, 658.

BREAST-FEEDING AFTER WEANING.

THE successful re-establishment of breast-feeding when the supply of maternal milk has failed, or when a child has been weaned for some other reason, has until recent years been regarded as an unlikely phenomenon. A member of the Central Midwives Board informs us that midwives often complain of the uselessness of attempting to enlist medical help in cases of difficult breast-feeding. The exhibition of a reputed galactagogue with a warning to the mother that she will probably have to resort to artificial feeding in the end is usually the net result of an appeal to a practitioner by midwife or mother. The results obtained in the re-establishment of breast-feeding after long periods of weaning by the simple methods in use at the Mothercraft Training Society, founded by Dr. F. Truby King in 1917, are remarkable and the institution, well-known among medical officers of welfare centres, deserves wider recognition by those in general practice than it has hitherto received. The following table, taken from the annual report of the society recently issued, gives some typical cases.:—

Length of time weaned in weeks.	Age in weeks.	Total breast milk in oz.		Subsequent history.	Length of stay in hospital in weeks.
		First 24 hrs. after admission.	Last 24 hrs. before discharge.		
6	11	1	21½	Fully breast-fed till 8 months	3½
¼	6	2½	16½	Fully breast-fed	3
2	6	4	18½	Still being fully breast-fed	3
4	6	½	15½	Fully breast-fed a fortnight after discharge	4
4	6	2½	16½	Fully breast-fed for 9 months	1
3	5	½	23½	Fully breast-fed for 8 months	4½

There are 3 beds for mothers and 20 cots available, and during the 17 months covered by the last report 146 infants and 72 mothers were admitted as in-patients and 609 new cases as out-patients, the total out-patient attendances amounting to 3523. The majority of these cases had been referred to the society for advice, especially with regard to breast-feeding. Other work done includes the training of fully qualified nurses, midwives, and previously untrained women in mothercraft; simple practical courses are also arranged at regular intervals for young mothers or girls about to marry. Lectures and demonstrations are given to associations of midwives, health visitors, and so forth. The hon. medical director of the society is Dr. R. C. Jewesbury, while Dr. J. S Fairbairn acts as hon. consulting physician. We are informed that, should there be sufficient demand, demonstrations for practitioners will be arranged at the house of the society, 29, Trebovir-road, Earl's Court, S.W. 5, and in view of the excellent results achieved we would urge our readers to avail themselves of the facilities offered.

THE Voluntary Hospitals Commission have decided to convene a conference of representatives of Local Hospital Committees which will be held on Tuesday and Wednesday, July 18th and 19th, at the Ministry of Health. It is hoped that all local hospital committees will be represented by their chairman and secretary, but other members of committees will be welcome if they care to attend, and no limit will be placed upon the number of representatives from any particular committee. Cards of admission will only be sent to those persons whose names have been notified to the Commission not later than July 10th.

BRITISH CONGRESS OF OBSTETRICS AND GYNÆCOLOGY.

THE gynæcologists and obstetricians of Great Britian and Ireland held their third annual congress at Liverpool on June 30th and July 1st. It was a large and representative gathering, including visitors from London, Edinburgh, Dublin, Belfast, and many English and Welsh towns. The morning of June 30th was devoted to the reading and consideration of reports on the prognosis and treatment of eclampsia, based on a study of the hospital records of patients during the past ten years. The reports dealt largely with statistics, but these were handled with such skill and understanding that their study yielded some valuable new matter for consideration. We publish below an abstract of the report of the Special Committee of the Royal Society of Medicine. In addition to the reports of the committees four short papers were read on Eclampsia by individual members, Dr. G. FitzGibbon and Dr. Bethel Solomons dealing with the method of treatment in vogue in Dublin, and Mr. T. G. Stevens (in absentia) and Mr. A. W. Bourne with treatment by veratrone, and an interesting and illuminating discussion followed. The members were entertained at lunch in the Medical Institute by the North of England Obstetrical and Gynæcological Society, and during the afternoon visited various hospitals of Liverpool and witnessed operations.

A successful dinner was held at the Adelphi Hotel on June 30th. Saturday morning was devoted to short papers describing specimens.

THE PROGNOSIS AND TREATMENT OF ECLAMPSIA.

The Committee of the Section of Obstetrics and Gynæcology of the Royal Society of Medicine, appointed in October, 1921, consisted of the following members: Mr. A. W. Bourne, Prof. Louise McIlroy, Dr. T. W. Eden (chairman), Mr. Eardley Holland, and Dr. Herbert Williamson. In order to assist them in the investigation, the Committee subsequently coöpted the following: Mr. Gordon Ley (since deceased), Dr. A. J. McNair, and Dr. Everard Williams. The Committee desire to record their indebtedness to the three coöpted members for their very valuable assistance. The late Mr. Gordon Ley, with characteristic energy, undertook a large share of the very arduous work of analysing the records of the 547 cases, and the Committee would wish to make a special acknowledgement of their indebtedness to him, and of their deep regret that he did not live to see the completion of the work in which he had taken such a deep interest. The Committee state:—

The aim of the Committee has been to obtain as accurate information as possible regarding the methods which have been adopted in recent years, the severity of the cases to which these methods have been applied, and the results which have followed. We have, therefore, undertaken an examination of the whole of the cases admitted during a period of ten years to the following hospitals: St. Bartholomew's, Charing Cross, St. George's, Guy's, King's College, the London, St. Mary's, Middlesex, St. Thomas's, University College, Westminster, Royal Free, Queen Charlotte's Lying-in, City of London Maternity, General Lying-in. We have included in our analysis those cases only in which convulsions occurred, and have endeavoured as far as possible to exclude cases of chronic renal disease complicated by uræmic fits in pregnant and parturient women. The period selected, from 1911 to 1921, is an unfortunate one in some respects, for it embraces the war, during which, in many instances, the case-records were of necessity incomplete, and chemical and other investigations limited to those which were strictly essential.

The Material of Investigation.

A study of the material investigated shows that during the selected period 547 cases of eclampsia were admitted to these hospitals, and of these 427 patients recovered and 120 patients died. The maternal mortality is, therefore, 22·1 per cent. In the reports for the Midland Society and for Edinburgh the results correspond closely to ours, the mortality rate for a total of 835 cases from the three centres being slightly higher than ours at 23·5 per cent. Although our primary aim has been to ascertain the results of treatment, the analysis of the figures we have obtained has thrown light upon some other points and we have included in our report some facts which appeared to be worth recording.

With regard to ætiological factors we have looked into the following points: (*a*) Yearly and seasonal incidence; (*b*) the influence of parity; (*c*) the relative liability to eclampsia of single and of twin pregnancies.

(*a*) The view has in the past been occasionally advanced that eclampsia showed a periodicity of occurrence suggesting an epidemic character. Our figures do not support this view either in comparing one year with another or one month with another.

(*b*) The number of primigravidæ delivered in any given year is, of course, greatly inferior to the number of multiparæ delivered. Yet, of our cases, more than two-thirds were primiparæ, the actual figures being for the London cases 69·8 per cent. and for the total of the three reports 69 per cent. This shows that the liability to eclampsia in the first pregnancy is greater, to an enormous extent, than in any subsequent pregnancy.

(*c*) With regard to twins, the London report shows that 9 per cent. of our cases were twin pregnancies; the total of the three reports gives a proportion of 6·6 per cent. The average incidence of twins is a little more than 1 per cent. Therefore twin pregnancy is more liable to be complicated by eclampsia than is single pregnancy.

Classification of Manifestations: The Influence on Mortality.

We next attempted to devise a plan by which cases could be grouped into two classes—"mild" and "severe." This appeared to be a necessary preliminary to any exact study of the effects of treatment.

It being agreed that eclampsia is a disease which varies greatly in severity in different cases, if we are to compare the effects of different forms of treatment, some such grouping is necessary, for, if a particular treatment has been adopted in mild cases only, and another treatment in severe cases only, it is obvious that the results obtained in the two groups are in no way comparable. With this object in view we have studied the effects upon prognosis of the following phenomena: Coma, the pulse-rate, the temperature, the number of fits, the amount of albumin in the urine, the degree of œdema, the blood-pressure.

Coma.—385 cases have been analysed. We find that the mortality of all cases with coma is 34·2 per cent. and of cases where the coma is described as "deep" 63·4 per cent., whereas the mortality of cases without coma is only 5·09 per cent. It appears, therefore, that coma is a grave symptom, and deep coma carries with it a bad prognosis.

Pulse-rate.—343 cases have been examined and have been divided into three groups: Group I., where the pulse-rate is over 120, mortality 40 per cent; Group II., where the pulse-rate is between 120 and 90, mortality 9·4 per cent.; Group III., where the pulse-rate is below 90, mortality 5·4 per cent. A pulse-rate of over 120 is, therefore, of grave significance.

Temperature.—The temperature has been examined in 351 cases and the cases divided into three groups: Group I., temperature above 103° F., mortality 74·3 per cent.; Group II., temperature between 103° and 100° F., mortality 11·2 per cent.; Group III., temperature below 100° F., mortality 5·9 per cent. A temperature of over 103° F. is, therefore, of grave prognostic import.

Number of Fits.—The number of fits is recorded in 426 cases. A more detailed analysis of these will be made later. It will be sufficient to state here that the average number amongst those who recovered was 6·8, and amongst those who died 12·7. The percentages

for the combined figures are almost exactly the same. A larger number of fits than ten appears to be a grave sign.

Albuminuria.—The amount of albumin in the urine is recorded in 383 cases. We have divided the cases into four groups: Group I., albumin absent, two cases only and no mortality; Group II., a small amount, mortality 8 per cent.; Group III., a large amount, mortality 14 per cent.; Group IV., urine solid on boiling, mortality 25·3 per cent. A urine which becomes solid on boiling is a sign of grave danger.

Œdema.—The absence of œdema or its degree when present, is stated in 303 cases. It is difficult to establish a definite standard, but the cases fell into three groups: Group I., where a note is made that there was no œdema, mortality 29·4 per cent.; Group II., where the œdema is described as "slight," "moderate," or "local," mortality 15·4 per cent.; Group III., where the œdema is described as "great" or universal," mortality 16·3 per cent. From these figures it appears that the absence of œdema is of grave significance, but the presence of widespread œdema is not. It should, however, be stated that the Report of the North of England Gynæcological Society shows that the mortality was highest in the cases with severe and widespread œdema.

Blood Pressure.—We find systematic records of blood pressure in a series of 85 cases only. We have divided the cases in this series into three groups: Group I., below 140 mm. of mercury, mortality 21 per cent.; Group II., between 140 and 200 mm. of mercury, mortality 20 per cent.; Group III., above 200 mm. of mercury, mortality 36 per cent. It appears, therefore, that a blood pressure of above 200 is attended by a high mortality rate.

From these isolated symptoms we conclude that these seven phenomena are signs of danger: Coma, a pulse-rate over 120, a temperature above 103° F., a number of fits greater than ten, a urine which becomes solid on boiling, the absence of œdema, a blood pressure above 200 mm. When a patient exhibited any two of the above phenomena we have grouped the case as a severe one, when these phenomena were absent as a mild one.

Adopting this classification we find (London figures only):—

Mild cases	264	(60·1 %)
Severe cases	161	(36·6 %)
Moribund on admission	14	(3·3 %)
	439	
Insufficient details for classification	108	
Total	547	

In addition to the above-mentioned points upon which we have based our classification, it appeared that there were a number of other points which had their influence on mortality. We accordingly proceeded to examine the mortality rate in relation to: (1) Parity; (2) the period of gestation at which the eclamptic convulsions supervened; (3) the number of fits previous to treatment; (4) the incidence of fits before, during, or after labour; (5) the sudden onset of convulsions without preceding symptoms; (6) the persistence of the fits after delivery.

Parity.—The number investigated was 458.

	Died.
Primigravidæ	20·5 %
Multiparæ	23·6 %

The mortality is, therefore, a little higher amongst multiparæ than amongst primigravidæ.

Period of Gestation at which Eclamptic Convulsions Supervened.—The number of cases investigated is 413. The mortality amongst 184 cases before the thirty-sixth week is 22·2 per cent.; amongst 229 cases between the thirty-sixth week and full term 17·9 per cent.; this suggests that the disease is more severe between 28 and 36 weeks than after the latter period.

Number of Fits Previous to Treatment.—The number of cases investigated is 136; 109 patients who recovered had, before the commencement of treatment, an average of over *four* fits each; 27 patients who died had, before treatment, an average of over *seven* fits each.

Incidence of Fits Before, During, or After Labour.—The number of cases investigated is 447.

Time.	Mortality.
Onset before labour	20·5 %
,, during labour	16·6 %
,, after delivery	27·6 %

The mortality is, therefore, *greatest* when the onset of fits is post-partum and *least* when intra-partum.

Sudden Onset of Fits without Preceding Symptoms.—The number of cases investigated is 386: It is recorded in 69 cases or 17·9 per cent. that no symptoms had been noticed prior to the fits; 59 of these patients recovered and 10 died, mortality 14·5 per cent.; the proportion for the combined figures is 16·8 per cent. We attach little importance to these figures. Few of the cases had been under skilled observation and the history depended upon the statements of the patient or her friends. In none of them is there any record of urinary examinations.

Persistence of Fits After Delivery (cases of post-partum eclampsia are not included).—The necessary information was available in 413 cases. Of this number the fits continued after delivery in 118 (incidence 28·5 per cent.). In cases classed as "mild" the incidence was about one-third lower than in those classed as "severe." Of the 118 cases in which fits continued after delivery the mortality was 22·1 per cent.—this is exactly the same as the mean mortality of the whole series. Of the 295 cases in which fits ceased after delivery, the mortality was 21·6 per cent. From this it appears that fits may be expected to cease after delivery in about four out of five cases; further, the prognosis in those cases in which fits continue is not unfavourable, for our figures show that the "mild" cases all recovered and the "severe" cases showed a mortality only slightly higher than the mean mortality of all "severe" cases.

Results of Treatment.

The diversity of methods employed has made analysis of results of treatment very difficult; it is convenient to consider treatment under the headings of Obstetric Treatment including the method of delivery, and Medical Treatment. In considering treatment we have taken only the cases which could be definitely classified as mild or severe; only 425 cases could be thus classified and of these 264 were mild and 161 severe. We attach importance to the classification of cases, because we believe that it will appear that regard should be had to the severity of the case in selecting methods of treatment. The mean mortality of the 425 cases is 16·2 per cent. If the cases are divided into mild and severe the figures are as follows: Mild 264, mortality 6·4 per cent.; severe 161, mortality 32·4 per cent. The ratio of the mortality rate in mild and severe cases is therefore exactly 1 to 5.

I. *Results of Obstetric Treatment.*

The cases fall into the following five groups:—

(1) *Natural Delivery*—i.e., spontaneous delivery without interference of any kind.—Total 89, mean mortality 12·3 per cent. Mild 50, mortality 6 per cent. Severe 39, mortality 20·5 per cent.

(2) *Induction of Labour*, delivery thereafter being spontaneous.—Total 83, mean mortality 9·6 per cent. Mild 59, mortality 5·1 per cent.; severe 24, mortality 20·8 per cent.

(3) *Assisted Delivery.*—These are mostly cases of low forceps, with a small number in which version was performed. Total 151, of which 22 died; mean mortality 14·5 per cent.; mild 100, mortality 5 per cent. Severe 51, mortality 33·3 per cent.

(4) *Cæsarean Section.*—Of the total, 6 were vaginal operations, 5 recovered, and 1 died. Total 88, of which 21 died; mean mortality 23·8 per cent.; mild 51, mortality 9·8; severe 37, mortality 43·2 per cent.

(5) *Accouchement Forcé.*—Nearly all were cases of forcible manual dilatation. Total 14, of which 7 died;

mean mortality 50 per cent.; mild 4, mortality 25 per cent.; severe 10, mortality 60 per cent.

In order to dissociate as far as possible the influence of the disease from the method of delivery, as factors in mortality, the results in the mild and severe cases may be compared. The mean mortality in mild cases is 6·4 per cent. and in severe cases 32·4 per cent., a ratio of exactly 1 to 5. If the mild cases delivered by the three simpler methods (Nos. 1 to 3) are compared with the severe cases delivered by the same methods, the mortality rates are 5·2 per cent. and 26·3 per cent. respectively—i.e., the ratio of 1 to 5 is almost exactly maintained. If we compare in the same manner the cases delivered by Cæsarean section we find that the mild cases showed a mortality of 9·8 per cent., the severe cases a mortality of 43·2 per cent., which also corresponds closely to the mean ratio of 1 to 5. The cases delivered by accouchement forcé are excluded, because the results are such as to condemn the use of this method under any circumstances. Hence it appears that cases which can be classified as severe may be expected to show a mortality rate five times greater than those classified as mild, no matter what method of delivery is adopted. This striking difference in the mortality rate of the two groups seems a proof of the soundness of our classification. Cases without obstetric interference or in which simple methods only were adopted, show a much lower mortality than those delivered by Cæsarean section. The mean mortality of the various methods is as follows: Induction 9·6 per cent., natural delivery 12·3 per cent., assisted delivery 14·5 per cent., Cæsarean section 23·8 per cent., accouchement forcé 50·0 per cent. If now the results of the different methods as they appear in the mild cases only are compared with one another we get: Induction 5·1 per cent., assisted delivery 5 per cent., natural delivery 6 per cent., Cæsarean section 9·8 per cent.

It appears, therefore, that in mild cases Cæsarean section increases the maternal risk to the extent of nearly two to one, and that cases delivered by the three simpler methods have much the better chance.

If now the results in the severe cases are compared we get: Natural delivery 20·5 per cent., induction 20·8 per cent., assisted delivery 33·3 per cent., Cæsarean section 43·2 per cent. Here also the cases in which there was a minimum of obstetric interference show much the best results.

Three conclusions may, perhaps, be drawn from this analysis of the results of obstetric treatment: (*a*) That natural delivery, or delivery by simple methods is attended by the smallest risk to the mother; (*b*) that delivery by rapid and forcible dilatation of the cervix is bad treatment; (*c*) from the evidence before us we conclude that Cæsarean section impairs the patient's chances of recovery, whether the case be mild or severe.

II. *Results of Medical Treatment.*

One or two general observations are called for in regard to the medical treatment carried out in this series of cases. It is clear that medical treatment has seldom been carried out upon any definite plan, and has also been, generally speaking, excessive. The patient has been subjected to a multiplicity of drugs and to a succession of procedures such as venesection, saline transfusion, hot packs, and gastric and colonic lavage, which might be expected to reduce a parturient woman in good health almost to the point of death, and must have done serious harm to one suffering from a grave toxæmia.

An attempt has been made to glean from the records some information as to the value of medical treatment as a whole, and also as to the value of individual methods of treatment. For this purpose the various methods of medical treatment were grouped as follows: (*a*) Elimination (including purgatives except croton oil, enemata, gastric and rectal lavage, rectal saline, &c.); (*b*) venesection; (*c*) intravenous saline; (*d*) morphia and other sedatives; (*e*) croton oil; (*f*) hot packs; (*g*) veratrone. In addition, starvation or strict limitation of food was frequently combined with other methods, but no details of food given are available. The cases which terminated fatally were first selected for investigation by analysing the medical treatment adopted in each case. The task of analysing the medical treatment in the whole series of 547 cases was too formidable to be undertaken. In the next place venesection and administration of morphia were selected as representing individual methods of treatment, and a record made of all the cases in which these methods had been adopted, both those which recovered and those which died.

In the large majority of cases the treatment adopted ranged over three or more of the above groups. In only seven instances was simple treatment falling under one heading only adopted. In 15 cases the treatment comprised two groups, elimination and morphia being the combination most often employed. In 24 cases treatment comprised three groups—elimination, morphia and hot packs, or elimination, morphia and veratrone being the most commonly employed combination. In 23 cases complex and varied treatment comprising four or more groups was carried out. A few cases were subjected to treatment by elimination, venesection, intravenous saline, morphia, hot packs and veratrone. It is impossible to avoid the conclusion that the majority of the fatal cases were over-treated, and that in a considerable number the excessive treatment must have been a contributory factor in bringing about the fatal results.

In attempting to arrive at an opinion as to the value of individual methods of treatment, in respect of only two methods were the data sufficient to warrant conclusions being drawn from them. These methods were venesection and the administration of morphia with or without other sedatives; cases in which less than ½ gr. of morphia had been given were not included. The results are as follows:—

Venesection (143 cases).—Mild cases, total 60, mortality 11·6 per cent. Severe cases, total 83, mortality 47 per cent. The mean mortality of the mild cases in the whole series of 425 cases was 5·4 per cent.; the cases in which venesection was done showed double this mortality rate. The mean mortality of the severe cases in the whole series was 34·3 per cent.; the severe cases treated by venesection showed a mortality of more than one-third greater than this. So far as these results may be relied upon it therefore appears that venesection is a method from which little benefit is to be expected, and which may do harm.

Morphia and Other Sedatives (69 cases).—Mild cases, total 39, mortality 7·8 per cent; severe cases, total 30, mortality 53·3 per cent. These results are no more encouraging than those of venesection. It must, however, be recollected that in the case both of venesection and of morphia very few of these cases were treated by the above methods only; many other things were done to the patient as well, the effects of which cannot be disentangled from those of venesection or of morphia.

The Causes of Death in the Fatal Cases.

It appeared that some light might be thrown upon the effects of treatment by an analysis of the causes of death. The proportion of cases in which a post-mortem examination was made was very small, and the cause of death specified is the clinical cause in the majority of cases; in only 87 of the 120 cases which terminated fatally was any information available, and that was often of a fragmentary nature. Of the 87 cases, in 27 no reliable opinion as to the cause of death can be expressed; in 36 death was attributed to eclampsia, and in this group are a fair number of autopsies; in 5 cases death was due to cerebral hæmorrhage, these being all cases in which a post-mortem diagnosis was made. In 10 cases pulmonary complications, such as pneumonia, bronchitis, pulmonary embolism, and œdema of the lungs, were the cause of death; the other causes specified are uræmia (one case) suppression of urine (one case), heart failure, shock, chloroform poisoning, general peritonitis, and accidental hæmorrhage. In one of the fatal cases two pints of blood were taken by venesection, and the patient was delivered by accouchement forcé: this

case was classified as "mild on admission," and it seems probable that any chance she had of recovery was destroyed by the severity of the remedial measures employed. In two cases there was post-mortem evidence of acute tracheitis and œdema of the lungs; in both croton oil had been administered, and it seems probable that here also the methods of treatment employed were, to a great extent, responsible for the fatal results.

If the figures are looked at as a whole, we may take it that death attributed to eclampsia, to cerebral hæmorrhage, to uræmia, or to suppression of urine are the direct outcome of the disease. These account for 47 cases out of 60 in which the cause of death could be determined—i.e., 71·5 per cent. In the remainder —viz., pulmonary complications, heart failure, shock, chloroform poisoning, general peritonitis, and accidental hæmorrhage—it is, at the least, an arguable proposition that by more judicious management of the cases a great number of these fatalities could have been averted.

We looked lastly into the matter of the fœtal and neo-natal mortality and the influence upon it of the methods of delivery; the results will be found in the complete report, but need not here be gone into.

Conclusion.

In conclusion, we should like to say that we regard the results set out in our report as being profoundly unsatisfactory, and having, as we believe, cleared the ground by showing how much our methods have been at fault, we hope now to set out on the much more difficult task of formulating better methods in their stead. From the data collected in our report we are not in a position to do so, but we intend, with the coöperation of our colleagues at the various hospitals in London, to test in a systematic and comprehensive manner the application of one or more simple schemes of management over a series of consecutive cases. We hope to get a system of note-taking adopted which will facilitate our classification into mild and severe cases, because to this point we attach great importance, for in the case of a disease so variable as eclampsia comparisons are valueless unless we are sure that we are not attempting to compare dissimilar things. It will, of course, take time, but if our colleagues in the north and the midlands would join us the necessary material would be quickly accumulated, and results of value might be reached without any considerable delay.

VENEREAL DISEASE.

SOCIETY FOR THE PREVENTION OF VENEREAL DISEASE.

THE third annual meeting of this Society was held in the Barnes Hall of the Royal Society of Medicine on June 29th, when Lord Willoughby de Broke presided and delivered an important address.

The Ministry of Health, he said, had not found itself able to apply the teachings of science to the prevention of the disease: the policy of instructing the public in the methods and values of immediate self-disinfection was still advocated by the S.P.V.D., and although the Ministry of Health was apparently prepared to accept the responsibility of withholding from the public knowledge of the advantages of immediate self-disinfection, there were certain hopeful indications that the National Council for the Control of Venereal Diseases might presently coöperate with the S.P.V.D. He reminded his audience of an important move in this direction, when in the "eight point manifesto," published in March, 1921, the National Council said, "If an individual has incurred or has reason to think that he or she has incurred risk of infection, it is his or her bounden duty to cleanse himself or herself thoroughly and immediately, or ineffectual or insufficient cleansing may lead to failure in preventing the development of this disease," and remarked that this was a complete acceptance of immediate self-disinfection. Lord Willoughby de Broke quoted also a paragraph from a report by Sir Leslie Mackenzie, issued by the Scottish Committee of the N.C.C.V.D. which ran as follows: "It is absurd to say that there is any danger in teaching every person capable of being taught that the venereal diseases are each of them due to a definitely known germ; that so long as the germ lies on the surface, it can be destroyed by a mild disinfectant or even mechanically removed by soap and water without much trouble; but that when one of those germs enters the channels of the body and infects the lymphatic glands or the blood, the destruction of the germ, which is another name for the cure of the disease, causes in at least two of these diseases a matter of extraordinary difficulty, and demands high technical knowledge and skill. In teaching these facts we are teaching things so simple that any person can understand enough of them to realise the danger of spreading the disease, the essentials of the methods of preventing them, and the difficulty of curing them once they are acquired." Thus neither the N.C.C.V.D. nor the Ministry of Health were blind to the value of immediate self-disinfection, but the perpetual suggestion must be refuted that if these methods were adopted they would create a false sense of security in the public mind.

There had lately, he continued, been some decrease of V.D. in this country, the cause of which it was impossible to define with exactness, but it was remarkable that the slight decrease in the percentage of cases synchronised with the enlightenment of the public with regard to immediate self-disinfection and the dissemination of knowledge which hitherto had been hidden. The campaign against venereal disease was of world-wide importance in these days of international transport. A French Commission of Inquiry recently published a report which stated that one-tenth of the population of France suffered from syphilis, and the death-rate directly or indirectly was 140,000 per annum. This report also found that general paralysis of the insane, "a purely syphilitic disease," accounted for one quarter of the inmates of asylums, while syphilis was considered to be a very important factor in disease of the heart and blood vessels, and a predisposing cause of tuberculosis and cancer.

Referring to religious difficulties, he regretted that there should be those who thought that the Church was definitely ranged against the policy of immediate self-disinfection. He wished to point out that Bishop Welldon was now a vice-president of the S.P.V.D., and had written a very telling preamble to a pamphlet setting forth the policy of their Society. Further, the names of the learned and patriotic women on the committee of the Society afforded a complete answer to the suggested opposition of women. He was glad to see that Lord Gorell had made a conciliatory speech at the recent meeting of the N.C.C.V.D. with regard to the controversy that had been occupying so much time, and he sincerely trusted that the Commission which was now sitting under the learned presidency of Lord Trevethin would be able to make such a recommendation to the Ministry of Health that the truth about venereal matters would no longer be withheld from the people of this country, and that the State would recognise that it was one of their primary duties to safeguard the health of the nation and to prevent the evil consequences of promiscuous intercourse. There was more than one method of attacking the subject. The N.C.C.V.D. relied upon exhortation and the spread of the knowledge of the risks that are run, and upon the hope of being able to cure the diseases. The S.P.V.D. had always been enthusiastic in the support of these methods, particularly with regard to the clinical method, but it would be a great pity if when anyone came for cure he were not told how to prevent himself from catching the disease, supposing he ran the risk. Over and above all this, however, was the policy of immediate self-disinfection, and the Society over which he presided intended to hammer away until their views met with the acceptance they deserved. Lord Dawson, who was mainly instrumental in arranging for the inquiry which was now being held under the presidency of Lord Trevethin, wrote a letter to *The Times* on

Nov. 22nd, 1921, in which he said: "Until some conclusion supported by a considerable preponderance of opinion has been reached it cannot be reasonably expected that the Ministry of Health should do otherwise than maintain impartiality and give a fair field and no favour to the two sexes by thought and action. As a logical consequence grants of money should be made to either both or neither of the corresponding societies." Lord Willoughby de Broke invited the meeting to pass a resolution to the effect that the Ministry of Health should be approached for financial assistance.

Mr. Harold Cox said that the strength of the S.P.V.D. lay in the fact that its financial support was voluntary, and that in any case it would be more courteous to wait until Lord Trevithin's Commission had reported.

Sir Bryan Donkin supported Mr. Harold Cox, and after some discussion, in which Mr. W. Whitworth, Lieut.-Commander F. Cadogan, R.N., and Major General Sir Francis Lloyd took part, the following resolution on being put from the chair was passed unanimously:—

"That when Lord Trevethin's Commission has reached a decision the Ministry of Health shall be again approached with a request for financial support to assist us in carrying out the policy as expressed in our new policy pamphlet."

Mr. Wansey Bayly, the hon. secretary, having read the report, which dealt with the propaganda work of the Society, stated that Pembroke had been added to the list of borough councils adopting the policy of the Society, making a total of 21 such bodies. Sir W. Arbuthnot Lane, hon. treasurer, submitted the financial report, whose adoption was moved by Lady Askwith, chairman of the Women's Committee.

Dr. A. Mearns Fraser, medical officer of health of Portsmouth, who seconded, explained the result of immediate self-disinfection at Portsmouth, the first large town to officially adopt such a policy. There were no means of exactly estimating the prevalence of the disease in any district, he said, as there was no notification, but the number of people attending treatment centres formed a guide as to whether the disease was increasing or decreasing. In 1917 a treatment centre was first opened in February, when 352 patients suffering from V.D. applied for treatment. In 1918 there was an increase of 91 per cent., in 1919 an increase of 62 per cent. In 1920, when the policy of self-disinfection was adopted, during the latter half of the year the number fell to 13 per cent., and in 1921, the first complete year in which the policy was in force, there was a further decrease to 12 per cent. Comparing the first five months of the present year with those of last year there was a decrease of 23 per cent. While these figures were too small and the period of time too short to claim excessive significance for them, the results were those which it was prophesied would occur if the policy of immediate self-disinfection were adopted. A spread of knowledge had been followed by a decrease in the disease, and he added that as far back as 150 years ago self-disinfection was recommended, in almost the same words as were now used by the Society, by John Hunter.

The meeting terminated with the adoption of the report and financial statement, and the re-election of the Executive and Women's Committees.

VENEREAL DISEASE IN ESTHONIA.

According to the April number of *Eesti Arst*,[1] the oldest records of venereal disease in Esthonia date from the middle of the seventeenth century, and in the beginning of the eighteenth the disease was already widely spread. It was introduced chiefly by sea folk, and by soldiers returning from wars abroad, and was rapidly spread through the land by vagabonds and tramps. In those days it was thought sufficient to enforce examination of all such wanderers and of suspected persons, who were obliged to comply with the demands of a health certificate. The first clinic for venereal disease was opened in the General State Hospital in Helsingfors in 1756, and it was at that time already an accepted principle that persons suffering from these diseases should be afforded hospital treatment at the expense of the State. As the population of the towns grew, so did the number of prostitutes increase, and as it was thought that they were the chief sources of the spread of the disease, to them great attention was directed. All prostitutes were obliged to produce a health certificate every half year and to be examined when required by the authorities. In 1847 an order was given out in Helsingfors for regular examination of all prostitutes, at first twice a month, and since 1859 once a week. In 1894 a new law, still for the most part valid, was introduced, which had for its basis regular preventive examination. Up to 1907 the organisation was in the hands of the police and the appointed medical officers of that body, but since that date it has been undertaken by a separate government health office. From 1884 onwards there has been a rule that not more than two prostitutes may live together, but this was easily evaded by the chance presence of one or more "guests." Brothels were, however, vigorously prosecuted, with the result that they soon disappeared entirely, and in Helsingfors only street prostitution apparently survives. Control is, however, maintained.

Regulation of Prostitution.

In the service of the Health Office at the present time there are a number of inspectors whose duty it is to watch the streets and places of amusements for persons suspected of being professional prostitutes. At first two of the inspectors were women, but the work was found unsuitable for women, and unpleasant situations arose. Suspected persons, male or female, may be asked to undergo an examination at the Health Office, and if they refuse they must produce a doctor's certificate within a certain time. If venereal disease is absent no further attendance at the office is necessary, but if it is suspected, although symptoms may be absent, the patient must present him or herself a week later. If the case is positive the patient is sent into hospital, and when discharged therefrom is obliged to undergo regular examination until no relapse is feared. Not only the inspectors, but also private doctors, hospitals, and the public give the Health Office information of sources of infection, which is carefully controlled before measures are taken. All latent syphilitic cases have to receive weekly calomel injections for three years, with three to five monthly pauses. Before this out-patient treatment was introduced nearly twice as many syphilitic as other venereal diseases were admitted into the hospitals, but now the position is practically reversed. Persons with obvious symptoms of disease are only in exceptional cases treated in the out-patient department or by private doctors; they are usually admitted into the hospital. The Health Office not only organises control and treatment of the disease, but makes every effort to induce prostitutes to take up other occupation. This work is left largely in the hands of a woman, who persuades and advises the girls and finds accommodation for the destitute among them in homes. In Helsingfors there are two such homes, one kept by the Salvation Army and one private. The Health Office pays for maintenance in these homes, and financial help to individual women is also offered when needed; but it is admitted that these efforts, although earnestly carried out, bear little fruit.

Hospitals in Helsingfors.

Helsingfors possesses two hospitals, of 120 and 135 beds respectively, for women suffering from venereal diseases. As far as possible separate departments are provided for confirmed sinners, and for novices and beginners, and each department is again divided into syphilitic and non-syphilitic. The hospitals are outside the town, and the inmates are employed

[1] A new monthly magazine, edited by the Medical Society of Esthonia in Dorpat, containing articles of interest on medicine, surgery, public health, and allied subjects. The major part is written in Esthonian with summaries in French and German; some articles are written in French and some in German.

with outdoor as well as indoor work. As already mentioned, after disappearance of symptoms patients receive continuous out-patient treatment. Men are sent to the V.D. department of the general hospital. As in every other country great opposition has been brought up against these various measures, and recently a committee has been sitting to consider if further measures should be taken to supplement or substitute those already in force. In their report they advocate the principle already working in Denmark and Sweden, of a general "discreet" notification. The effect of political unrest on the incidence of venereal disease is manifest. At the end of March, 1917, after the beginning of the Russian revolution, the fact that the number of cases of gonorrhœa in women undoubtedly decreased, while in men they enormously increased, can, perhaps, be explained by the assumption that at this time the lack of control gave the women more opportunity than usual to infect the men, while they themselves evaded notification. A similar observation was made at the beginning of July, during the so-called military strike, while at the end of July the number of women reported with gonorrhœa increased, probaby because they were induced to attend the Health Office or private doctors to avoid being sent to hospital.

THE MEDICAL INSURANCE AGENCY.

A MEETING of the Executive Committee of the Agency was held at the offices of the British Medical Association on Thursday, June 29th, when there was a full attendance to hear the annual report which was presented, with balance-sheet and accounts, by Dr. G. E. Haslip, the chairman. The report, which dealt with the position of the Agency up to Dec. 31st, 1921, showed the amount returned to medical men insuring through the Agency during the year as £1697, bringing the total so returned since the establishment of the Agency in 1907 to £10,992. These rebates, as the chairman's report pointed out, represent a definite and actual saving to the profession, and the progress of the Agency is shown by the fact that in 1907 the sum so returned on the first year's working was £140, while, save for the three closing years of the war, the progression in amount has been regular and uninterrupted for 15 years.

It will be remembered that one of the objects of the Agency was to use part of any commission secured by insurance *en bloc* for the benefit of medical charities, and the progress in this direction tells something the same story. It was not till the third year of the establishment of the Agency that any sum worth distributing remained over; but during the next 12 years the distribution under "Medical Benevolent Account" has risen from £47 to £1965, the sum by which medical charities benefited during 1921 through the Agency; and it should be pointed out that here the progression was maintained throughout the hard years of 1916, 1917, and 1918, when a drop, though a small one, occurred in the amounts returned to practitioners. The result is one of which the Medical Insurance Agency may well be proud.

The remainder of Dr. Haslip's report, after dealing with the influence which the Agency had been able to exercise in the matter of the Epsom College elections, consisted of a brief analysis of the accounts, which revealed that the principal extension of business had been in Life and Motor-car insurance; new Life policies were arranged during the year to assure sums amounting to £105,500. Increases in expenditure had, he showed, been small, and the committee adopted the report unanimously, agreeing with the view that the evidence warranted the forecasting of a rate of steady progress, which would be maintained.

The substantial sum accruing for distribution for the benefit of the medical profession led to a proposal from Sir Dawson Williams that the scope and methods of allocation of grants for educational purposes should receive further attention, and he instanced in particular that some attempt should be made to assist in the education of the female children of practitioners, whose case was frequently even more anxious than that of the boys. A resolution was adopted, proposed by Dr. H. A. Des Vœux, seconded by Sir Squire Sprigge, and supported by Dr. Weaver Adams, that a small subcommittee with a wide reference should be formed to consider the matter and report to the Executive Committee in six months.

A grant of £210 was made to each of the following:—Royal Medical Benevolent Fund, the Guild connected with that Fund, and Epsom College Benevolent Fund—600 guineas in all; the remainder available for similar purposes, amounting to some £400, was retained to meet any recommendation that might be made by the new subcommittee.

The full Committee were present—viz., Dr. G. E. Haslip (chairman), Dr. E. Weaver Adams, Sir John Bland-Sutton, Dr. Alfred Cox, Dr. H. A. Des Vœux, Lieut.-Colonel R. H. Elliot, Dr. R. A. Gibbons, Dr. R. Langdon-Down, Dr. J. A. Macdonald, Sir Squire Sprigge, Mr. W. E. Warne, and Sir Dawson Williams. Mr. P. N. Adamthwaite, the Agent (429, Strand, London, W.C.), was also present.

THE NATIONAL PHYSICAL LABORATORY.

A VISIT to the National Physical Laboratory is a lesson in itself, especially if the visitor is fortified by reading the annual report. The invitation of the President of the Royal Society brought a large company to the laboratory last week, when the various departments were in full working order and opportunity was given of meeting the experts in charge of them. The impression derived was of industry and efficiency throughout—how far-reaching and detailed the work is can only be grasped fully by a study of the annual report. That for 1921 is before us, and there are singularly few of its sections which are devoid of importance even from a medical point of view. Perhaps the one of dominant interest is the Pure Physics Section, including heat, thermometers, radiology, and sound, under the administrative direction of Dr. Kaye.

Tests upon clinical thermometers show a reduction in numbers from about one and a half millions to just short of nine hundred thousand, this being due to a change in the regulations which now exclude from compulsory testing those thermometers exported from the country. Less than 2 per cent. of the thermometers tested were rejected. The radiological work has become more extensive, and it was difficult for a visitor to realise that the equipment in the separate building devoted to this work is only one year old. Tests upon other radio-active bodies than radium are now being made, and it is hoped that arrangements will soon be completed for tests upon the small quantities of these bodies in native ores. A large amount of work is being done upon X-ray measurements; the behaviour of barium platinocyanide pastilles is now the subject of exhaustive study, and an ingenious optical modification of the ordinary tintometer permits the image of one-half of a pastille to be brought into close contact with that of one-half of the standard; this allows of greater ease and accuracy in matching tints.

The reports of the X Ray and Radium Protection Committee have borne fruit in many directions, and the work of this committee has been rendered doubly useful in having secured the collaboration of the National Physical Laboratory in endeavouring to carry out its aims. The laboratory now arranges for its experts to examine and report upon X ray installations in accordance with the suggestions made in the reports mentioned, and it is gratifying to learn that a number of hospitals have already availed themselves of these facilities. We trust that the statement in the report that "there is little doubt that the majority of the X ray installations in this country are deficient

from the point of view of protection" will find no warrant for repetition in future years.

Radiological interests among medical men at the present time are focused to some extent upon the production of very high voltages for generating penetrating X rays. We cannot do better than quote from the report in order that our readers may appreciate the position of the laboratory in this matter. "Voltages of 66,000 are now being installed under the guidance of the Electricity Commissioners, and the 100,000 volts at present available are inadequate for carrying out tests and research on materials and plant to be used at this voltage. Commercial voltages in other parts of the world are approaching 200,000, and though there is no immediate prospect of alternating voltages of this order being used in this country, there is a growing demand for investigations requiring these voltages, and it is very desirable that the laboratory should be in a position to carry out work of this nature. Inquiries have been made as to the cost of equipment for producing 300,000 to 500,000 volts. This would require a specially designed building. The physics and radio departments would have a special interest in the possibilities of such equipment, and the whole subject of a high voltage laboratory which would be arranged to be of the greatest value to all departments interested is one which should receive serious consideration."

We note with interest that more work on sound is being undertaken, and in the electrical department a new device is being constructed which will enable greater accuracy in the determination of the frequency of tuning forks. Perhaps the way will soon be clear for a source of sound giving a constant intensity, which would be of great medical use. In the Optics Section researches are being undertaken upon colour standardisation, but it is not yet decided what is the most suitable basis for accuracy and applicability.

The report is an exhaustive one, and indicates that the work being conducted by the laboratory is a national asset.

INDIA.

(FROM OUR OWN CORRESPONDENT.)

Ministerial Activities in Local Self-Government.

Mr. P. Ramarayaningar, the Minister for Local Self-Government, has recently made a public statement relating to medical relief and public health.

"I have been able," he said, "to arrange for the opening of 25 medical institutions under local bodies in various districts. Some of them have been actually opened and are now in working order. In the city of Madras the Government have established a tuberculosis hospital, and besides, we have taken over the women and children's hospital at Vizagapatam and we are proposing to open a medical school for women in Madras, and have granted Rs. 50,000 for the medical school for women at Vellore in charge of the American Mission there.

"In regard to sanitation," continued the Minister, "Government have arranged with five districts to have health committees formed with an adequate sanitary staff attached to them. The idea is that they should look after the sanitation of the district, and if the experiment succeed, to have similar committees appointed in other districts. As soon as these committees are brought into working order, steps will be taken to employ the Assistant Directors of Public Health on the special work of research and compilation of statistical and other information under the guidance of the Director of Public Health. This presidency is spending more in the direction of improving the sanitation of rural parts than any other province. One of the Assistant Directors of Public Health has been put on special duty to submit proposals as to what policy should be adopted in keeping places of pilgrimage free from liability to epidemic and general insanitation.

"As regards the medical services, the scale of pay of all grades of officers has been recently increased and their prospects have become very much better. The Secretary of State has been addressed to throw open as many as 20 places hitherto reserved for the I.M.S. to the Provincial Medical Service. As regards the indigenous systems of medicine the government have appointed a committee to tour through Northern India, Hyderabad, Mysore, Travancore, and Cochin States to study the working of the Ayurvedic and Unani systems in these places, and to make proposals to Government as to how best the indigenous systems could be fostered in this presidency."

With reference to the statement that in five districts health committees have been formed with an adequate sanitary staff attached to each, the first batch of 15 trained health officers have recently passed out from the Medical College, and five who obtained the B.Sc. degree of the Madras University have now been posted as district health officers. In order to assist in forming adequate trained health staffs, the Government have disbanded three of the eight cholera parties maintained from provincial funds, and the 30 trained sanitary inspectors from these parties have been distributed to the districts concerned. If this experiment proves successful, additional health officers are available for its extension to other districts. The opportunity in any case, in connexion with public health matters, has been given to these selected districts to prove the assertion of the Minister that "the real salvation of the country lies in the development of local self-government."

Progress in the Hookworm Investigation.

During the first four months of 1922 the work in North Arcot District has steadily advanced, more attention being devoted to the villages surrounding Ranipet, where the task of inducing the people to coöperate was difficult. After some remonstrances with the village headmen and other influential individuals of the community antagonism began to subside. Every endeavour has been made to bring the people to realise the importance of the work as a public health measure, so that when opportunity arises to deal with the problem in a more intensive manner it will not be such a slow and painful procedure. Lectures and demonstrations have been given at the weekly market at Ranipet, where thousands of persons gather from all parts of the Presidency and from Mysore. Evidence of the increased interest shown may be seen from the gradual rise in the number of treatments given from month to month—viz., 805 in February, 1761 in March, and 3177 in April. In February work was begun in Munnar, the most central of the 26 estates belonging to the Kunan Devan Hills Produce Company, and along with the treatments the construction of latrines at all the coolie lines was commenced. Lantern and kinema demonstrations and short talks by the chief medical officer were frequently given; prizes were offered in the estate school for the three best essays on hookworm disease. The essays showed that most of the children had obtained a very clear conception of the subject. In the Annaimallai Hills further investigations were undertaken early in March, to determine what interval exists, under the present insanitary condition of most of the estates, from the time the coolies are rendered practically hookworm free until they have again gathered a sufficient number of worms to justify further treatment. The investigations in this connexion are still being carried on, and the results will be published when the work has been completed.

Madras Consultative Council of Public Health Dissolved.

The following Government order was recently published:—

"In January and February, 1921, the Madras Government constituted a Consultative Council of Public Health, with a view to maintaining touch with non-official opinion in matters of public health. H.E. the Governor has since appointed an Advisory Committee of certain members of the Madras Legislative Council for Public Health administration, and the Government consider that it is unnecessary to have two advisory bodies for the same purpose. The Consultative Council of Public Health is therefore dissolved."

The advisory committee has been appointed and is now at work.

Anti-Vaccination Agitation.

The Bombay Humanitarian League has recently issued a publication entitled Vaccination and Small-pox,

and the Hon. Secretary of the League, in forwarding a copy to Colonel H. A. J. Gidney, I.M.S. (retd.)—a member of the Legislative Assembly representing the Anglo-Indian community—remarks that he hopes it "will enlighten you on the horrors of medical tyranny in the name of vaccination. If its perusal appeals to your conscience may I request you kindly to start a campaign in the Legislative Assembly for the abolition of compulsory vaccination in British India."

Colonel Gidney promptly replied as follows:—

"In my opinion your request commits a violence on my intelligence, an insult to my conscience and commonsense, and a tyrannical and criminal abuse of your extraordinary mentality. Such cranks as you are a worse danger to India than the most rabid non-coöperator. I take it for granted that you yourself have not been vaccinated, and that you are in the habit of practising what you preach. Well, will you, to prove the non-effectiveness as also the tyranny of vaccination consent to reside for one week in a small-pox hospital or in any small-pox infected area? If you are willing to do this, and during your stay make no effort to break the world's record of the mile race, I guarantee to become one of your devotees. I await your reply, and hope that you will do me the honour of including this letter in Part III. of the next issue of your pamphlet 'Authoritative Opinions.'"

Anti-vaccinationist activities are apparently not confined to Great Britain. In view of the fact that during the last six to eight months small-pox has been prevalent all over Madras Presidency, it seems time to draw attention to such pernicious teaching in the hope that all members of the medical profession will do their best to counter the statements made by such bodies as the Bombay Humanitarian League.

Child Welfare.

The following notice has been received by the Publicity Officer from the Organising Secretary, The Lady Chelmsford All-India League for Maternity and Child Welfare, Viceregal Lodge, Simla.

"The competition for the All-India Gold Medal, presented by the Maharajah of Sonpur, will be decided during the last week in September by a committee to be appointed. The subject chosen for the essay is 'The Organisation of a Milk Depôt at a Welfare Centre,' as suited to the needs of India, bearing in mind economy, efficiency of distribution, and the possibility of fraud."

Both lay and medical people are invited to send papers, which, if possible, should not exceed 3000 words. Mark "competition," and send in not later than Sept. 7th, addressed to the Organising Secretary, All-India League for Maternity and Child Welfare, Viceregal Lodge, Simla.

Madras, May 24th.

Public Health Services.

COMPLAINTS AGAINST PANEL DOCTORS.

IN our last issue (p. 41) we dealt with grievances put forward by the leaders of certain approved societies which call for speedy remedy in the interests of the Insurance medical service. The demands put forward by the Chief Shepherd, Mr. Andrew, at the conference of the Loyal Order of Ancient Shepherds are less reasonable. "We want the old-time liberty of calling in the doctor," says Mr. Andrew. If he means that medical treatment should be rendered at the homes of insured persons in every case this is clearly impracticable. His next demand, "a reduction in the interminable waiting at surgeries," could certainly not be effected by insisting that every insured person should be privileged to send for his doctor. If this were conceded the busy practitioner would have his round of visits largely increased, and surgery hours would be so encroached upon that the waiting would be still longer.

What does the liberty of calling in the doctor amount to? Does it mean that the patient is to decide whether he is ill enough to be attended at home? It is only in the best class of private practice where patients can afford to pay for the waste of time involved that minor ailments can be treated at home. In a busy industrial practice, if every patient could demand a visit, really serious cases would undoubtedly suffer. Such liberty could only be bestowed by regulations which would encroach on the prerogative of the practitioner. The doctor alone is competent to decide the manner and the method in which his treatment can be given with the best results. It is fortunate that insured persons generally are more reasonable than their leaders. Most of them know their doctors well enough to show them trust and consideration. In this way they know they are most likely to secure the best service in the time of their urgent need. Cases of grave illness occasionally turn up at the surgery, but such cases are rare; the wise practitioner deals with them promptly and subsequently attends them at home. From reports of medical service subcommittee cases we know there are men who hardly fulfil their responsibilities, paying a reluctant first visit and leaving the friends to send again if the patient is "any worse." Such practitioners deserve all they get when the friends complain of neglect. It is obvious that once it comes to the knowledge of a practitioner that an insured person on his list is ill at home and requires his services he ought not to cease his visits until the patient is well enough to go out of doors.

In the same address Mr. Andrew demanded specialist services in the following words: "If a doctor or a patient is dissatisfied with the course of an ailment, the specialist or the professor (sic) should be available without involving any extra cost to the member. . . . . After all, the specialist usually tells the patient little or nothing, but reports direct to the doctor, and it is not quite reasonable that the doctor should educate himself at the expense of the individual patient." From this it would appear that insured persons are to have free access to the specialists if they are "dissatisfied," while the words show a total misconception of the relation of the practitioner to the specialist. The funds of any medical benefit scheme would soon be bankrupt if the patients were in a position to demand special treatment; it must be left to the practitioner in the first instance to decide which cases require a consultant.

The conception of the part which the hospitals should play would seem to be very crude in the Chief Shepherd's mind. Mr. Andrew says, "Hospital treatment is part of medical benefit. . . . If the hospitals are treating insured people they are entitled to the capitation fee. . . . if such fees went to the hospitals along with the members the demand on their accommodation would not be quite so great." The assumption appears to be that insured persons are sent to hospital by practitioners simply to get rid of the burden of treating their patients. The truth is, of course, that patients are sent to the hospitals either to get a second opinion, to secure additional facilities for diagnosis, such as X ray examination or bacteriological diagnosis, or to undergo special forms of treatment, such, for instance, as a surgical operation, which can better be undertaken in a hospital. Perhaps the Chief Shepherd would insist that surgical operations for insured persons should be performed in their homes. But seriously a responsible official ought to know that hospital treatment is not part of medical benefit and cannot be treated as such. Hospital provision is certainly required, but will have to be specially provided for. The medical profession must be on guard lest an attempt should be made to force some of these demands on the Government, for to grant them would gravely prejudice the Insurance medical service.

REPORTS OF MEDICAL OFFICERS OF HEALTH.

City of London.

THE recent Census showed that the population of the City, which was 19,657 in 1911, was only 13,706 in June, 1921. The death-rate in 1921 was 11·5, the death-rate from tuberculosis of the lungs 0·95,

and the infant mortality rate 93. The birth-rate was only 9·4. Dr. W. J. Howarth tells us in his annual report for 1921 that a higher standard is now being demanded as regards housing conditions, but that the chief difficulty encountered is with "farmed-out" houses, which he hopes will be met by by-laws under section 26 of the Housing Act of 1919. Dr. Howarth again draws attention to the large proportion of patients who cease treatment for venereal diseases before the completion of the course. As regards the smoke nuisance, we are told that there are still difficulties in the way of obtaining suitable coal and skilled labour. Investigations of atmospheric pollution continue to be carried out on the roof of a corporation building in Golden-lane.

The report includes an interesting description by Inspector Kelland of the methods of slaughtering and inspection of meat in operation in New Zealand. Inspector Kelland is one of the City meat inspectors, and was granted leave of absence for health reasons; it is satisfactory to have this independent opinion that meat inspection as carried out in the Dominion is excellent, and that "we in this country can with perfect safety accept their certificate as a guarantee that not only is the carcase to which it is attached free from disease, but has been slaughtered under the best hygienic conditions." On the other hand, Dr. Howarth tells us that there continues to exist a great lack of satisfactory meat inspection at the places of origin in this country; it is hoped this may be remedied by proper enforcement of the recommendations of the Departmental Committee on Meat Inspection. A great increase in good quality lamb carcases from Argentina is reported. Satisfactory arrangements have been made with a newly-formed company for the disposal of unsound food products, and a modern factory with up-to-date plant has been erected for the purpose at Marshgate-lane. Seven out of 29 samples of milk, or over 24 per cent., were reported to contain the tubercle bacillus, and Dr. Howarth is satisfied that the obligation should rest on the farmer to ensure that the milk he supplies to the public is free from infection.

Amongst other matters referred to in the report are the difficulties in securing adequate lighting and ventilation for basement workrooms and the use of public conveniences by employees of business firms where there is a difficulty in providing suitable accommodation for each sex at the place of work. Dr. Howarth also makes interesting suggestions for a more efficiently conducted campaign against rats, and recommends that application be made for additional powers for the control of kitchens where food is prepared for consumption by the general public.

Westminster.

Dr. Francis J. Allan, in his annual report for 1921, states that it has been difficult to obtain the abatement of nuisances and to secure the keeping of houses of the tenement class in a decent state of repair, in consequence of the decline in the incomes of the owners and the high cost of labour. For the same causes rebuilding and reconstruction have been much below the average. Weather conditions were on the whole beneficial, though the occurrence of diarrhœa and septic throats in the autumn and the increased prevalence of scarlet fever and diphtheria might be attributable to this cause. The population of the city, which declined by 22,750 between 1901 and 1911, showed a further decline of 18,944 at the Census of 1921, and is estimated for 1921 at 141,317. There are now 130 females to 100 males in the city, there being a marked difference between the two divisions in this respect. In St. George's division there are 156 females to 100 males, while in the Abbey division there are 108 females to 100 males. As the incidence of pulmonary tuberculosis and other fatal diseases is much less among females, this constitution of the population has an effect on the death-rates.

The birth-rate for 1921 was 13·6; the death-rate 11·5; and the infant mortality rate, 80·2. Maternity and child welfare work continues to grow, and new centres have to be opened. 943 expectant mothers were visited in 1921, and 155 attended the antenatal clinics. It is noteworthy that of 154 deaths of infants, 77, or one-half, occurred in the first four weeks of life. A dental clinic has been in operation since 1920, and has been greatly appreciated. At the North Centre, 60, Greek-street, 47 classes were held for nasal hygiene. Dr. Allan thinks more use might be made of the Milne method for home-treated cases of scarlet fever; also of Schick tests followed by immunisation, especially in institutions. Dr. Allan compares the diarrhœa death-rate under 2 years (14·5 in 1921) with the rate which occurred in 1911 (47·5), and attributes the improvement partly to the extensive use of dried milk and possibly to altered conditions of carriage. The tuberculosis death-rates in Westminster for the last four years per 100,000 have been 173, 121, 109, and 95·5 respectively. Dr. Allan considers the decline remarkable, in view of housing difficulties and depression in trade, but fears that this trying financial year may have its effect in the future.

East Ham.

Some of the principal statistics for 1921 are as follows: Population, 145,500; birth-rate, 20·3; death-rate, 10·1; infant mortality rate, 67, and diarrhœa and enteritis under 2 years, 12·8 per 1000 births. Dr. W. Benton regrets that the arrangement with the Invalid Children's Aid Association, through which children could be sent to convalescent homes, has been terminated. The accommodation at the isolation hospital has been increased by the purchase of army huts, and it is hoped to make an arrangement with West Ham for small-pox. The scheme for a maternity hospital has been postponed, although Dr. Benton tells us that such accommodation within easy reach is urgently needed. The report is shortened in accordance with the Ministry's recommendation, but might have been further shortened by the omission of the tables on the work of the tuberculosis dispensary. The death-rates from tuberculosis are not given, and are usually of more interest and more reliable than notification figures; the table of causes of death informs us that there were 63 male and 61 female deaths from tuberculosis of the respiratory system.

In the school report, Dr. Benton says increased facilities are urgently required. The school dentist, Mr. C. S. Neame, endorses the need for more assistance and better accommodation for his department. There are no open-air schools.

Southwark.

Dr. G. B. Millson's report for 1921 is a volume of 170 pages, consisting almost entirely of tables Dr. Millson can report a decrease in both birth-rate and death-rate, and a very slight increase in the infant mortality rate, owing to the hot summer causing more diarrhœa. There has been no diminution in poverty, and £3000 were spent in free milk for mothers and children. A dental clinic was opened in September last for expectant and nursing mothers and children under five. The estimated population for 1921 was 187,142; the birth-rate, 27·3; the death-rate, 14·3; the infant mortality rate, 90; and the phthisis death-rate, 1·42. Southwark being inhabited principally by artisans and casual labourers has felt the effect of unemployment badly. Owners have not much money to expend on outside cleansing and painting, but Dr. Millson tells us the interiors of the houses are as clean as they were before the war. The deaths from diarrhœa were 149, as compared with 59 in the previous year. There were 46 cases of ophthalmia neonatorum notified and no case of permanent injury to eyesight. The tuberculosis officer, Dr. Horace Wilson, reports that the experiment of sending patients to training colonies has not proved successful. The town-dwellers apparently take badly to a country life, and have not the will-power to learn a new occupation. There is a great want of accommodation for advanced cases. The lending out of beds is useful from a preventive point

of view, but the loaning of shelters, though practised, has only a limited application, and, as Dr. Wilson says, "a patient requires considerable hardihood to occupy one under the conditions which exist in their back premises."

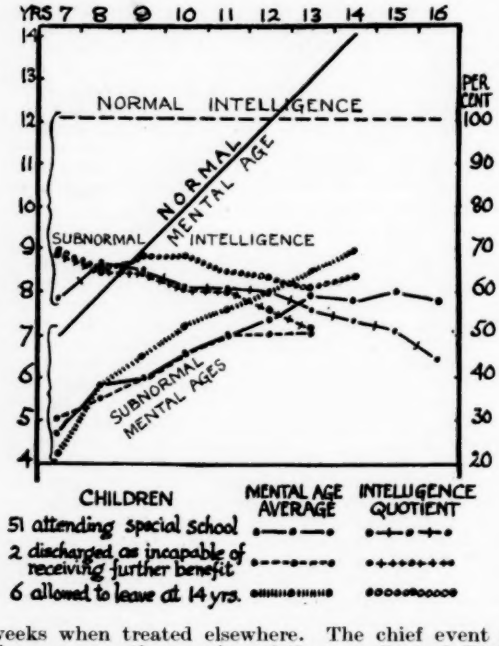
Stoke Newington.

Dr. H. R. Kenwood reports that the general death-rate in 1921 was the lowest for the past ten years, and the infant mortality rate the lowest ever recorded in the borough. Scarlet fever and diphtheria were excessively prevalent during the year, but, while there were no deaths among the 453 cases of scarlet fever, no less than 22 of the 164 cases of diphtheria ended fatally. The estimated population for 1921 was 52,590; the birth-rate, 20·4; the death-rate, 11·5; and the death-rate from pulmonary tuberculosis, 0·72. The infant mortality rate was 53, and of the 57 infant deaths 22 were ascribed to the "prematurity, congenital, &c.," group. The diarrhœa rate under two years compared favourably with the London rate. A dental clinic is urgently needed in connexion with the maternity and child welfare work. The housing question, as elsewhere, is urgent, and although the average annual increase of the population for the five years before the war was about 8 per 1000, no new working-class dwellings have been erected for some ten years.

SCHOOL MEDICAL SERVICE.

Hull.

IN his annual report for 1921 Dr. J. W. Fraser, the school medical officer, states that a medical examination of 14,817 children in the code groups was carried out. The figures show little change in the results of inspection from the previous year. The amount of ringworm infection appears to be stationary. Half the cases were cured by the use of iodine after 6·9 weeks regular treatment at the clinic, and in 12·3



weeks when treated elsewhere. The chief event of the year was the opening of the new Central Clinic. Of 917 cases of ear disease and deafness otorrhœa accounted for 654. Of these, 518 attended the school clinics and 136 were treated elsewhere. Of the 518 treated at the clinic, 198, and of those treated elsewhere 47, were discharged cured. Owing to the success reported in other quarters of zinc ionisation for ear disease, three cases were selected for this treatment. Two of these not proving a success, the school medical officer decided to discard the zinc ionisation method of treatment. A useful chart, here reproduced, of mentally defective children is being kept, the calendar age being marked along abscissæ and the mental age by an equal scale along ordinates. In this way a curve is obtained which in the normal child would slope upwards at an angle of 45°. The mentally subnormal child falls away from this slope, and when the child reaches what Dr. James Kerr referred to in London schools 20 years ago as its mental limit the curve ceases to rise. Further education then is of little use. If the intelligence quotient is marked on the same chart, it will appear to fall continuously.

The Services.

ROYAL ARMY MEDICAL CORPS.

Lt.-Col. R. L. Argles retires on ret. pay.

Capt. P. M. J. Brett is restd. to the estabt.

The undermentioned relinquish their commns.:—Temp. Capt. W. A. Clayton, and is granted the rank of Maj.; Temp. Capts., and retain the rank of Capt.: H. C. Perkins, E. E. Isaac, and D. R. C. Shepherd; Temp. Lt. A. Shearer, and retains the rank of Lt.

TERRITORIAL ARMY.

T. C. McKenzie to be Lt.

Capt. P. T. Rutherford resigns his commn. and is granted the rank of Lt.-Col.

The undermentioned officers, having attained the age limit, are retired, and retain their rank, except where otherwise stated: Maj. G. D. E. Jones, and retains the rank of Maj.; Maj. R. Corfe, and is granted the rank of Lt.-Col.; Maj. W. E. Miles, and is granted the rank of Lt.-Col., with permission to wear the prescribed uniform; Capt. T. J. T. McHattie, and is granted the rank of Maj.; Capts. R. T. Caesar, L. L. Preston, G. Scott, and G. H. L. Whale.

The undermentioned officers relinquish their commns. and retain their rank, except where otherwise stated: Capts. L. P. Harris, and is granted the rank of Maj., and Capt. W. B. Stewart.

General Hospitals: Capt. A. J. Drew, having attained the age limit, is retired and retains the rank of Capt.

Sanitary Service: Maj. L. R. Tosswell relinquishes his commn., and retains the rank of Maj.

ROYAL AIR FORCE.

Wing Commander to be Group Captain: C. E. C. Stanford.

Squadron Leaders to be Wing Commanders: W. Tyrrell, B. A. Playne, H. A. Treadgold, and D. Ranken.

Flight Lieutenants to be Squadron Leaders: E. P. Punch, J. H. Porter, R. W. Ryan, and H. S. C. Starkey.

Flight Lieutenants to be Honorary Squadron Leaders: H. B. Smith, E Brown, and H. B. B. Greene.

Flying Officer R. Boog-Watson to be Flight Lt.

Capt. H. E Hayes, Army Dental Surgeon, is granted a temporary commission on attachment to the R.A.F.

The Order of St. Sava, of the Fourth Class, has been conferred by the King of the Serbs, Croats, and Slovenes upon Surg. Cmdr. L. F. Cope, R.N., in recognition of his services during the war.

UNIVERSITY OF BIRMINGHAM.—The post-graduate course in Crime and Punishment, held during the last fortnight in May, was attended by nine practitioners from various parts of the United Kingdom, including three from Scotland. The course consisted of six lectures in each of the three subjects: Mental Defect, Insanity, and "Crime and Punishment." There were also two special lectures by Dr. Maurice Nicoll, while all the class took the opportunity of attending the two ordinary psychotherapy lectures Dr. Nicoll gave during the fortnight. Four demonstrations were given in the Mental Deficiency Office, three at Barnsley Hall, seven in the prison, one at Monyhull (mental defectives), and one at Barr Hall (mental defectives). A small lending library of 30 recent medical books bearing on the course was established in the Mental Deficiency Office. Dr. W. A. Potts, who is responsible for having initiated the enterprise, reports that appreciative letters have been received from all who attended the course, with some constructive criticism which will be noted in the arrangement of subsequent courses. It is hoped to repeat the course next spring.

Correspondence.

"Audi alteram partem."

BIRTH-CONTROL CONFERENCE IN LONDON: TECHNIQUE OF CONTRACEPTION.

To the Editor of THE LANCET.

SIR,—Will you permit me to remind your readers that at the Birth-Control Conference next week a discussion on contraceptive technique, open to medical practitioners and students only, will be held at the Kingsway Hall from 2.30 to 5 P.M. on Friday, July 14th. On the morning of that day a meeting will be held devoted to general medical aspects of birth control. Nearly a hundred medical men and women have already promised to attend, including several distinguished Harley-street consultants, and ten medical officers of health. Any medical practitioner desirous of becoming an honorary member of the Conference is invited to send his name and address to the medical secretary, Dr. B. Dunlop, at 71, Harley-street, W. 1.

I am, Sir, yours faithfully,

NORMAN HAIRE,
President, Contraceptive Section, International Conference on Birth Control.

71, Harley-street, W., July 1st, 1922.

PROTEIN BALANCE IN INFANT FEEDING.

To the Editor of THE LANCET.

SIR,—In answer to Dr. Eric Pritchard's letter in your issue of July 1st I do not in the least dispute that some infants do well when cow's milk is given on the breast-milk formula, and this is particularly the case when cow's milk is given as a supplementary food to breast milk. The real difficulty arises when there is no breast milk, and under these conditions, if we persist in the breast-milk formula, I find that a certain proportion of infants cease to gain in weight and their muscles become flabby; if now the proteid is very gradually increased the child's condition improves in every way without producing symptoms of dyspepsia or intestinal intoxication. I take it that the child's metabolism requires this increase of protein; it may be wrong theoretically, but clinically it works well.

A few years ago this method was considered quite a legitimate thing to do, and it was called by Dr. Pritchard himself a form of education. A passage occurs in his "Physiological Feeding of Infants," second edition, and on p. 35 we read: "The new-born infant can only digest very small quantities of proteid as it exists in cow's milk, and if he be given a mixture in which the percentage of proteid is higher than he can digest, his digestion will immediately suffer. At a later stage it is found that he can digest larger proportions, and if we wish to maintain his physiological condition at the highest possible standard, it is essential that he should receive this higher proportion of proteid." For many years past I have practised my nefarious methods with, I blush to say it, considerable success. Both medical men and women have examined my cases periodically, and they have pronounced the results as good. I have watched many of these cases up to the age of 5 years, and I have failed to find evidence of injuries which could be ascribed to excess of proteid. Now I am being severely chastised by Dr. Pritchard because, forsooth, he has become infatuated with biochemistry. I quite agree with him that Osborn and Mendel's experiments are very interesting, but these observers are dealing with rats and not human beings. The point I was discussing in my letter on June 17th was infant welfare and not vermin welfare, and I am not going to admit for a moment that the metabolic processes in the infant and rat are identical. Dr. Holt's papers are particularly interesting to me because he is dealing with the nutritional requirements of human infants. We have had evidence lately of the futility of expecting the same results to happen in experiments on animals and on human beings. Dr. Mellanby's puppies became rickety when fat-soluble A was withheld from their diet, whereas Dr. Hess failed to produce rickets in children when all fat food was eliminated from their diet.

According to Dr. Pritchard, the deferred effects of protein excess are truly alarming; these we are told are produced by "strains of de-amination imposed on the liver by the excessive absorption of normally digested amino-acids, and on the renal function owing to the excessive elimination of the products of nitrogenous metabolism." This I simply regard as another phase of Dr. Pritchard's biochemical infatuation. Here, again, I ask for clinical facts to support these theories. The clot of cow's milk is, of course, the great difficulty in early life. I am not ignorant of this fact, as Dr. Pritchard seems to imply, and with increasing experience its terrors have been greatly diminished. In the great majority of healthy infants if the proteid is increased gradually under medical supervision so that the digestive functions are given time to cope with the increased work thrown upon them, the child does not suffer from dyspepsia. In refractory cases the clotting can, of course, be entirely prevented by adding citrate of soda. I am, of course, not dealing with cases in which cow's milk in any form cannot be tolerated. The quantity of food given must not exceed the caloric requirements of the individual infant. It is scarcely necessary, perhaps, to mention Budin's name in this connexion. It is well known that he fed infants after the first few weeks of life on undiluted sterilised cow's milk with great success for many years, and he limited the quantity of milk given to about one-tenth of the body weight. There is some excuse for him, of course, because he died before the biochemical fashion set in.

I am, Sir, yours faithfully,

Kensington, July 3rd, 1922. RONALD CARTER.

NEGLIGIBLE GLYCOSURIA.

To the Editor of THE LANCET.

SIR,—Dr. P. J. Cammidge's letter of July 1st raises questions which I shall deal with in turn. I should not be so dogmatic as he in asserting that the problem why some cases of diabetes progress slowly and others rapidly is chemical. It is possibly bacteriological, or even due to influences not known at present; but this is no reason for refusing to classify conditions based on our knowledge of to-day. It did not seem necessary to me to give details of the diagnosis of diabetes mellitus when writing upon negligible glycosuria, but I emphasised the fact that negligible glycosuria did not protect from diabetes mellitus, and that only when there was conclusive evidence should a case of glycosuria be considered negligible. Dr. Cammidge ignored this statement, and from his letter one might assume that I had suggested that hourly estimations of the blood sugar were sufficient to exclude the diagnosis of diabetes mellitus.

Only a day or two ago a patient presented himself who was asserted to pass sugar in his urine occasionally. He was upon an ordinary diet and his blood sugar three hours after a meal proved to be 0·10 per cent. whilst the urine secreted with this blood sugar did not contain a recognisable quantity of dextrose. At intervals of ten minutes, starting 40 minutes after a generous tea, the blood sugars were:—0·15 per cent., 0·15 per cent., 0·18 per cent., 0·2 per cent., 0·17 per cent., and after a further interval of a quarter of an hour 0·11 per cent. The diagnosis of mild diabetes mellitus was made. Cases of this kind should not be missed by careful observers; but, on the other hand, let us see how far this applies to negligible glycosuria. When a patient comes with a statement that sugar is present in his urine almost continuously, I inquire when he had his last meal. If it was about three hours previously, I tell him to empty his bladder. I then take a sample of blood and a short time later ask him for a specimen of urine. If this sample of urine

contains a recognisable amount of dextrose, whilst the blood sugar proves to contain less than 0·15 per cent., I conclude that the patient has a very low renal threshold for dextrose. There is no reason to believe that that patient is more likely to have diabetes mellitus than any other patient who happens to find his way into my consulting room. It is scarcely reasonable to suggest that every patient who consults a physician shall have elaborate methods taken to exclude the possibility that he is suffering from a mild diabetes, when neither signs nor symptoms suggest the disease. Since negligible glycosuria is fairly common, it would be extraordinary if one did not meet any cases in which diabetes mellitus had developed. Dr. Cammidge refers to cases of diabetes mellitus with low renal thresholds for dextrose, but does not supply any evidence to contradict my suggestion that these are cases of diabetes mellitus which has developed in individuals who originally had negligible glycosuria.

I should like Dr. Cammidge's opinion on the following matter. When a patient passes dextrose in the urine in recognisable quantities and never has a blood sugar rising above 0·15 per cent. whilst on an ordinary diet, does he think the patient should be treated by restricted diet? If he does, upon what evidence does he base his belief? So that there shall be no misunderstanding as to what is meant by the blood sugar never rising above 0·15 per cent., I mean that if the blood be examined at ten minutes intervals after a meal, the sugar percentage is found to remain below 0·15 per cent.

I am, Sir, yours faithfully,

Portland-place, W., July 3rd, 1922. O. LEYTON.

ACUTE SUPPURATION OF THE MIDDLE EAR: EARLY DRAINAGE OF THE MASTOID ANTRUM.

To the Editor of THE LANCET.

SIR,—Dr. Dan Mackenzie's notes with this title, which appeared in THE LANCET of June 17th, upon the early drainage of the mastoid antrum, form a communication of the greatest possible importance. The question of the frequency of aural discharge has lately attracted much attention, and in my opinion Dr. Mackenzie offers in these notes an explanation of one of the factors which contribute to the dismal fact that, although systematic treatment of pharyngeal and nasopharyngeal sources of infection and other prophylactic measures have been in vogue for some years, yet aural discharge is disappointingly common. Apart from typical cases of mastoid infection, minor degrees of retention of fluid in the antrum and mastoid cells or actual subacute osteitis of the mastoid are conditions which exist and should be acknowledged and given the attention they deserve. A case of Bezold's mastoiditis with an abscess around the lateral sinus and occurring without any tympanic signs (reported by me in *Guy's Hospital Reports*, April, 1921) drew my attention to the importance of a class of case in which one must consider the mastoid as an independent factor, and an investigation from this point of view showed that it is important to recognise that the condition of the membrane, although naturally a good index of the state of the middle ear and mastoid, is by no means an infallible guide.

It is true that in the strictest sense a primary mastoiditis is rare enough to be outside the limits of practical considerations, yet there are cases in which the mastoiditis occurs after the primary focus has resolved—others in which the mastoid infection overshadows and masks the tympanic symptoms—and yet others associated with localised epitympanic suppuration which is difficult to detect. The extension of nasopharyngeal mucosa into the antro-tympanic region affords at once a source of infection and a mechanism of protection. The anatomical conditions provide easy drainage. Hence these parts are frequently infected and possess extraordinary powers of recovery and in this lies the whole clinical problem. Resolution is in many cases complete—in some the defensive mechanism fails completely and the mastoiditis declares itself and is operated on at once—but in the intermediate class of case resolution is incomplete or delayed and recovery of normal function is impossible. To detect these cases and to interfere by operation at the earliest possible moment is what I understand Dr. Mackenzie to urge, and what seems to me so important. To wait for abscess formation or to vacillate in the hope of resolution are unjustifiable attitudes except perhaps in the case of old patients in whom anæsthetic risks may become considerable and in whom preservation of function is not of such vital importance.

I am, Sir, yours faithfully,

Welbeck-street, W., June 20th, 1922. A. M. ZAMORA.

BACILLUS COLI INFECTION OF THE URINE.

To the Editor of THE LANCET.

SIR,—As a female sufferer from coliform bacilluria I read with interest Sir William Hale-White's lecture on *Bacillus Coli* Infection of the Urine, reported in your issue of June 24th. Sir William Hale-White as a consultant has when discussing the treatment interested himself chiefly in the acute stage of the illness. I as a patient who has arrived at the chronic stage find that the problem of alleviating chronic symptoms so as to be able to carry on one's ordinary work more absorbing. During my personal experience of the illness (which has consisted of two attacks, each lasting some months, and each beginning with acute cystitis, the urine containing mucus, pus clumps of *B. coli*, and bladder epithelial cells) several interesting features have emerged.

It appears that when the acute attack is over rest for some weeks in a warm climate is most desirable, for I have found that only on a perfectly warm day, or in a warm room with no suspicion of a draught, is there actual comfort. On the other hand, it may be necessary to continue the daily routine of work even though the chronic stage of the illness may last some months; and the patient meanwhile suffers from almost continuous bladder discomfort, backache, and malaise, is very easily tired, and is extremely sensitive to cold and damp. Cold damp weather makes the patient feel really miserable, and other symptoms are exacerbated, though the body temperature remains normal. Possibly this hypersensitivity to cold is due to some upset of the nervous system. During my first attack backache began at the onset of the illness as a dull bilateral pain over the sacral region, and about three weeks later, when the acute bladder symptoms were subsiding, I was seized when stooping down with an acute pain in the right lumbar region, exactly like lumbago. This lumbar pain was acute for two or three days when I attempted to move, and afterwards persisted for four or five weeks as a dull ache. At the time of onset of this pain in the lumbar region a few renal epithelial cells were found in the urine. Backache during the second attack was confined to the sacral region.

I have found that in order to alleviate the symptoms during the chronic stage of the illness it is necessary (1) to continue to drink freely barley-water or warm water; (2) to guard against chills, and to wear a very deep woollen body-belt even in hot weather; (3) to avoid alcohol and strong coffee; (4) to rest as much as possible; (5) to evacuate the bladder frequently; (6) to push the well-known treatment by administration of alkalies in order to keep the urine alkaline. This last point is extremely important so long as the symptoms are at all urgent. I have found potassium citrate most effective for rendering the urine alkaline; it is easily soluble, has not much taste, and in the crystalline form is easily portable. The dose is roughly a half to one teaspoonful to a large tumbler of warm water every three hours. As the symptoms diminish so the dose may be decreased, but it is advisable to take one dose a

day for at least a month after a cure is supposed to be effected. Potassium is depressing taken over long periods, so sodium citrate was tried instead, but was found to be not so easily soluble, and to have a nauseating taste. Sodium bicarbonate is quite pleasant to take and is equally effective, but after a day or two the digestion gets upset and its use has to be discontinued. These salts are not, of course, intended to act in any other way than to render the urine an uncongenial home for the *Bacillus coli*, which prefers an acid medium. Hexamine taken at the same time as acid sodium phosphate was given several trials, but in my case it was not tolerated by the bladder. A vaccine was not tried in the first attack, but a detoxicated vaccine is now being used, as to the effectiveness of which it is early days to speak.

I am unable to throw any light whatsoever on to the actual cause of my own illness. My first attack occurred about three weeks after a slight touch of influenza (which was neglected), at the end of a period of hard work and during chilly spring weather. The second attack I attributed to a prolonged wait on a cold and draughty railway station, and it came on also in the spring after several months of specially strenuous work.

I am, Sir, yours faithfully,

June 23rd, 1922. X.Y.Z., M.B., B.S.

Medical News.

UNIVERSITY OF OXFORD: *Appointment of Dean in the Faculty of Medicine.*—The Board of the Faculty of Medicine has appointed E. W. Ainley Walker, D.Sc., D.M., Fellow and Tutor of University College, lecturer in pathology in the University, to the newly instituted office of Dean of the School of Medicine. Owing to the increasing complexity of medical studies at Oxford, where medical students take an Honours degree in Natural Science (usually in Physiology), in addition to the medical curriculum, the University has recently thought it desirable to assist the organisation and coördination of the activities of the school by authorising the appointment of a Dean.

Radcliffe Scholarship in Pharmacology.—The recently instituted scholarship in pharmacology, of the value of £50 for one year, has been awarded by the Master and Fellows of University College, Oxford, upon the report and recommendation of the professor of pharmacology, Dr. J. A. Gunn, to Albert Arthur Fitzgerald Peel, University College (honorary scholar); proxime accessit, Allen Warren Linford Row, Brasenose College (senior Hulme scholar).

UNIVERSITY OF CAMBRIDGE.—At examinations held recently the following candidates were successful:—

DIPLOMA IN MEDICAL RADIOLOGY AND ELECTROLOGY.

Part II., Radiology and Electrology.—Robert Westland Chalmers, Alexander Flett, John Anthony Geraghty, Bernard Grellier, Sidney Milverton Hepworth, Athanase Lambadarides, Joseph Alexander Thomson, and Oscar Ramsay Unger.

UNIVERSITY OF DURHAM: FACULTY OF MEDICINE.—At the Convocation held on June 27th the following degrees were conferred:—

Doctor of Medicine.—Sujan Raj Chatterji (in absentia), George A. Clark, William D. Forrest, James R. Hughes, Herbert A. Lake, Ivan M. Pirrie, Robert Welch, and Samuel K. Young.

Doctor of Medicine for Practitioners of 15 Years' Standing.—Richard D. Attwood, Alexander Brownlee, John Ll. Prichard, and Charles B. Rossiter.

Master of Surgery.—John Gilmour, Arthur B. Jones, and George E. Lloyd.

Bachelor of Medicine and Bachelor of Surgery.—Florence Bentham, Robert A. Brown, Robert H. Burnett, Roy N. Craig, Hubert B. L. Dixon, Anne Fairweather, Gladys H. Fletcher, Elizabeth Killian, Mona Kirkhouse, Thomas Kirsopp, George McCoull, Ettie O. McCullagh, Mary J. McManus, Mary Manners, Hugh L. Mather, Abraham J. Moskow, Una M. Mulvany, Peter Murphy, Patrick J. O'Connell, Leo N. K. O'Neill, Frederick W. M. Pratt, Jacob V. Reuben, Jessie E. Sheret, George W. Spark, Norman H. Watson, James Whillis, Charles A. Wilson, George Wilson, Henry A. Wilson, Eleanor H. Wylam, and Ella L. Young.

Bachelor of Hygiene.—George Hurrell and Alice M. Stenhouse.

Diploma in Public Health.—George Hurrell and Alice M. Stenhouse.

Licence in Dental Surgery.—George Clare, William A. Cowden, Henry Moor, Norman Peters, and William N. Walker.

UNIVERSITY OF SHEFFIELD.—At examinations held recently the following candidates were successful:—

FINAL M.B., CH.B. EXAMINATION.

Norman Blackburn, Janet Breakey, Margaret I. Cannon, Dora Cocker, Thomas W. Froggatt, Doris Pindar, May P. Smith, Clara D. Tingle, and Francis A. Wrench (with distinction in Midwifery).

SECOND M.B., CH.B. EXAMINATION.

John S. Callcutt, Margaret M. Croll, Marjorie T. Crookes, Ralph K. Dowson (with distinction in Anatomy, Part I.), Richard L. Flint, Alys M. Gregory, Dorothy L. Gregory, Thomas H. Harrison, Marion Hirst, John L. Jago, Wilfrid Malone, Phyllis A. Moore, George W. Rippon, Elisabeth M. Sykes, and Lucy T. Winskill.

UNIVERSITY OF LONDON.—The Semon lecture, entitled the Development of Transatlantic Rhino-Laryngology, will be given in the lecture hall of the Royal Society of Medicine, 1, Wimpole-street, London, W. 1, by Prof. H. S. Birkett, Dean of the Faculty of Medicine, McGill University, Montreal, at 5 P.M., on Wednesday, July 12th. The chair will be taken by the Vice-Chancellor of the University, Mr. H. J. Waring. The lecture is addressed not only to students of the University but also to others interested in the subject. Admission is free, without ticket.

A GRAND fête will be held at Grovelands public park, Old Southgate, to-day, Saturday, July 8th, in aid of the Hospitals of London Combined Appeal.

POOR LAW MEDICAL OFFICERS' ASSOCIATION.—The report of the Council for the year 1921–22 records that much work on behalf of the district medical officers throughout the country has been done, and many inquiries have been dealt with. Further changes in the public medical administration of the country must of necessity affect the status and interests of the Poor-law medical officer, and the Council is keeping a close watch on the various movements so as to be prepared to act when an emergency arises. The accounts show a balance of £60 on the year's work. During the year the hon. sec., Dr. Withers Green, was obliged to relinquish the work, and the Council at his suggestion appointed Dr. John Alcindor to act in his absence abroad. The annual meeting will take place on July 13th, at 3.30 P.M., at 429, Strand, London, when Sir Arthur Newsholme, the new President of the P.L.M.O. Association, will deliver an address.

ROYAL NORTHERN HOSPITAL.—Miss Grace Watson, publicity supervisor of the Royal Northern Group of Hospitals, addressed the pupils of the Finchley County School on June 23rd in connexion with the Hospitals of London Combined Appeal. She pointed out that in North London the ten voluntary hospitals had a joint income of £125,182 in 1921, and their expenditure amounted to £135,645. They treated 6176 in-patients, and over 181,000 out-patient attendances were registered. The Royal Northern, which has been appointed the "key" hospital for the northern area, had 145,000 out-patient attendances during that period. The Combined Appeal was being made on behalf of 100 London hospitals in order that they might be free from debt, and for the first time the Government was prepared to subsidise "new" money "pound for pound" up to £300,000.

MEDICO-PSYCHOLOGICAL ASSOCIATION OF GREAT BRITAIN AND IRELAND.—The eighty-first annual meeting of the Association will be held on July 17th to 21st under the presidency of Prof. George M. Robertson, in the Royal College of Physicians and in the University of Edinburgh. The first two days will be devoted to committee and council meetings. On Wednesday, July 19th, a business meeting will be held at 10.30 A.M. at the Royal College of Physicians, 9, Queen-street, Edinburgh, when the officers of the Association for the year 1922–23 will be elected, the Maudsley lecturers for the next three years appointed, and other business done. At 11.30 A.M. a paper will be read by Dr. A. Ninian Bruce, entitled "The Out- and the Inside Treatment of Early Cases of Mental Disorder." At 3 P.M. the Presidential address will be delivered by Prof. Robertson on the Hospitalisation of the Scottish Asylum System. On Thursday, July 20th, the Association will meet at the Physiology Lecture Room, University New Buildings, Teviot-place. The day will be devoted to addresses on different aspects of the relation of the endocrine glands to the nervous system and to mental pathology, by Sir Edward Sharpey Schafer, F.R.S., Sir Frederick Mott, F.R.S., and Dr. David Orr, in the morning, and Prof. J. C. Meakins, Dr. J. J. Graham Brown, and Dr. W. H. B. Stoddart, in the afternoon. On July 21st, at 10.30 A.M., at the Royal College of Physicians, there will be a discussion on the Treatment of Mental Diseases, opened by a paper on the Treatment of Intestinal Toxæmia, by Dr. Chalmers Watson. In the afternoon arrangements will be made for a motor drive through the Scott country.

LONDON DERMATOLOGICAL SOCIETY.—The annual oration on the Progress of Dermatology will be delivered at St. John's Hospital, Leicester-square, on Thursday next, July 13th, at 7 P.M., by Dr. T. Caspar Gilchrist, of Baltimore. On the same evening, at 9 o'clock, a reception will be held at the hospital by the President, Dr. Prosser White.

NEO-MALTHUSIAN AND BIRTH CONTROL CONFERENCE.—A programme of this conference, to be held at Kingsway Hall, London, W.C., from July 11th to 14th, has now been issued. Mr. C. V. Drysdale, D.Sc., will preside. The conference will be divided into sections where the following aspects of birth control will be discussed: (1) Individual and family; (2) Economic; (3) Eugenic; (4) Moral and religious; (5) National and international; (6) Medical; (7) Contraceptive; (8) Propaganda and general. Among the speakers at the first-named section, which meets at 2.30 P.M. on July 11th, are Dr. Jane Lorimer Hawthorne and Dr. Frances M. Huxley, and at the medical section, which meets on July 14th at 10 A.M., Dr. C. Killick Millard presiding, are Dr. Anton Nystrōm (Sweden), Dr. H. Rohleder (Leipzig), Dr. Norman Haire, and Dr. Donald R. Hooker (U.S.A.). At 2.30 P.M. on July 14th a private session for members of the medical profession will be held under the presidency of Dr. Norman Haire, when contraceptive technique will be discussed. Dr. Tokejoro Kaji will speak on methods of birth control known in Japan, and Dr. Anton Nystrōm on contraceptive methods. A free ticket for the conference can be obtained by medical men and women on application to Dr. B. Dunlop, 71, Harley-street, London, W.1.

METROPOLITAN HOSPITAL SUNDAY FUND.—The total received at the Mansion House up to the present is about £62,000, which includes the following:—

Church and other Collections.—St. Columba's Church of Scotland, Pont-street, £804; Christ Church, Lancaster Gate, £800; St. James, Piccadilly, £424; Holy Trinity, Sloane-street, £326; British Red Cross Society (Camberwell Division), £325; Brompton Parish Church, £248; St. Peter's, Cranley-gardens, £241; St. Martin's-in-the-Fields, £224; St. Giles, Cripplegate, £179; Westminster Abbey, £175; All Souls, Langham-place, £165; Temple Church, £151; St. Alban's, Golder's Green, £150; St. Peter's, Bayswater, £146; Brixton Independent Church, £145; Christ Church, Gipsy Hill, £144; St. Stephen's, South Kensington, £142; St. Andrew's, Lambeth, £137; Greek Church, Bayswater, £130; Union Church, Mill Hill, £130; St. Andrew's Presbyterian, Frognal, £130; Brunswick Hall Primitive Methodist, Whitechapel, £130; The Christian Evidence Society, £125; All Saints, Ennismore-gardens, £124; Chipping Barnet Parish Church, £111; St. Peter's, Belsize Park, £108; Christ Church, Highbury, £107; St. Matthew, Bayswater, £105; Essex Church, Kensington, £106; St. Giles-in-the-Fields, £101; Dulwich College Chapel, £101; St. Paul's, Forest Hill, £100; St. Paul's, Upper Norwood, £100; Marylebone Presbyterian Church, £100; Hornchurch Parish Church, £100.

Donations.—Sir John Latta, Bart., £525; London County Westminster and Parr's Bank, £500; National Provincial and Union Bank of England, £500; Lloyds Bank, Ltd., £500; Watts, Watts and Co., Ltd., £315; Chartered Bank of India, Australia, and China, £250; Sena Sugar Estates, Ltd., £250; Anon., £200; Lieut.-Colonel More-Nisbett, £200; Gas Light and Coke Company, £105; Marylebone Cricket Club, £105; Blyth Greene Jourdain and Co., Ltd., £105; W. H. Cullen, £105; United National Collieries, Ltd., £105; W. Gardiner and Co., Ltd., £105; Wilson, Sons and Co., £105; A.B.C., £100; Anon,, £100; Miss E. C. Druce, £100; H. J. S., £100; Mrs. Henty, £100; Imperial Bank of Persia, £100; Forestal Land Timber and Railways Co., Ltd., £100; Mr. W. D. Graham-Menzies, £100; Grace Brothers and Co., £100; Mr. Alfred Brauen, £100.

NATIONAL BABY WEEK COUNCIL.—A conference on infant welfare, under the joint auspices of the National Association for the Prevention of Infant Mortality and the National Baby Week Council, was opened on July 3rd. Mr. Arthur Collins made an able speech on the advisability of block grants, advocating a scheme of State grants for public health services on an average of admissible cases and the amount allowable on each case. Great divergency of view was expressed on the subject of health services in rural areas. A paper by Dr. R. A. Lyster was read, in which he emphasised the need of a system of full-time health visitors, while Dr. R. Smedley, Dr. W. A. Bullough, and others were in favour of some combination of offices, it being recommended by one speaker that the offices of health visitor, district nurse, and midwife should be held by the same person. The question as to what form of care, including medical attendance, should be provided for children from 1–5 was dealt with by Dr. R. Woolsey Stocks, Dr. Margaret Hogarth, and Dr. H. B. Brackenbury. While Dr. Stocks was against the nursery school and Dr. Hogarth whole-heartedly in its favour, Dr. Brackenbury took a midway position. He felt that, though in present circumstances the nursery school was a valuable institution in poor, crowded areas, our aim should be so to improve the mother's conditions that it should cease to be necessary to take children out of their homes. The question of the staff of a welfare centre led to considerable discussion, recommendations varying between whole-time specialist officers and experienced general practitioners. A paper on rickets was read by Dr. Corry Mann at the annual general meeting of the Maternity and Child Welfare Group of the Society of Medical Officers of Health, this meeting being timed to coincide with the conference.

Boy Mortality.—The National Baby Week Council has given its approval to an offer by the *Daily News* of one hundred guineas for the best essay of 2000 words dealing with the problem of the excessive mortality of boy babies; and the chairman of the Executive Committee of the Council has undertaken to adjudicate with the aid of a small medical and scientific committee. Awards are also to be made to the statutory maternity and infant welfare committees of the districts which produce the greatest reduction in the boy baby death-rate and the actual smallest boy baby death-rate within the next 12 months; and there is a special offer to parents and nurses for their experience in the rearing of boys. Full particulars may be had by sending stamped (½*d.*) addressed envelope to the *Daily News*, Home Dept., Bouverie-street, London, E.C. 4.

LITERARY INTELLIGENCE.—Messrs. Cassell and Co. announce the forthcoming publication of "The Opthalmology of General Practice," with 40 illustrations in colour, by Mr. Malcolm L. Hepburn.

SOUTH LONDON HOSPITAL FOR WOMEN.—An anniversary festival and country fair will be held on July 12th in the hospital grounds, South Side, Clapham Common. The hospital will be open to inspection. Presents of money, provisions, toys for children, &c., will be acceptable. Tickets of admission, 2.30 to 4 P.M., 2*s.*; after 4 P.M., 1*s.*, can be obtained at the hospital.

Parliamentary Intelligence.

HOUSE OF COMMONS.

WEDNESDAY, JUNE 28TH.

Entertainments Tax and Hospital Funds.

THE House considered the Finance Bill in Committee, Mr. J. F. HOPE in the chair.

Mr. ROSE moved an amendment to provide that entertainment duty should not be charged for admission to any entertainment where the Commissioners of Customs and Excise were satisfied that the whole of the profits were devoted to philanthropic or charitable purposes. He said that the District Hospitals Fund Association of Aberdeen last year organised entertainments and were able to pay to the local hospitals and infirmaries, dispensaries, nursing associations, and so forth, £1000. But they were required to pay entertainments duty to the extent of £232. When these entertainments were got up in order to raise money to help the poor, the infirm, and the sick and ailing, he did not think it was right that the proceeds should be taxed in this way.

Sir R. HORNE (Chancellor of the Exchequer) said that Mr. Rose's assumption was that at the present time no allowance was made for any of the expenses incurred by the promoters of entertainments for philanthropic and charitable purposes. That was not the case. Originally, it was provided that only those entertainments in regard to which the whole profits were given to charity were exempt from duty, but that had been modified to the extent that where not more than 20 per cent. of the profits had been spent upon expenses the entertainment should be exempted from duty. He (Sir R. Horne) was willing that the allowance in regard to expenses should be increased from 20 to 30 per cent., which he thought would really meet the most deserving cases. He anticipated that by making this concession he would be able in connexion with the hospitals to escape from the burdens which might be imposed on the Treasury. He was doing this with an entirely selfish object, and whilst it might cost £50,000 to carry out, he expected to be more than recouped for the loss to the Exchequer.

The amendment was withdrawn and the Committee stage of the Bill was completed.

National Water-supplies.

Mr. ALFRED T. DAVIES asked the Minister of Health whether the allocation of suitable available supplies of water and the provision for the future was or had recently been under the consideration of the Ministry and with what result.—Sir A. MOND replied: Yes, Sir, a survey of the water resources of the country is now in progress, and the whole subject is being carefully considered.

The Pollution of the River Lea.

Lieut.-Colonel Sir RAYMOND GREENE asked the Minister of Health whether he was satisfied that the proposed improve-

ments in the sewage disposal works at Enfield would prevent the pollution of the River Lea by sewage in the Hackney district, and whether any improvements to the Tottenham sewage system were contemplated.—Sir A. MOND replied: The Enfield improvements should make a marked difference, but I cannot say whether all pollution of the river will be prevented. No change in the Tottenham sewage arrangements are proposed; this sewage is passed into the L.C.C. sewers and should, therefore, not pollute the River Lea.

Colonel Sir RAYMOND GREENE also asked the Minister of Health whether he had approved of the scheme submitted by the Enfield Council for the improvement of their sewage disposal works; and, if so, whether there was any possibility of work being started on the scheme by the end of July.—Sir A. MOND replied: The scheme has been approved, subject to certain modifications. I understand that it is doubtful whether it will be possible to start work by the end of July, but I am taking all steps to see that the matter is expedited.

Grants to Voluntary Hospitals.

Mr. GRUNDY asked the Minister of Health what amount of the £500,000 had been granted to the voluntary hospitals; and what were the hospitals, and the amount allocated to each one.—Sir A. MOND replied: A list of the grants approved by the Commission up to date is appended. I am informed that the Commission are very anxious that hospitals in the provinces should expedite the presentation of their claims, which have hitherto been slow in reaching the Commission. The Local Hospitals Committees are being urged to press this matter forward in every way they can.

Pharmacy Bill.

Captain O'GRADY presented a Bill to regularise the position of all persons trading as chemists and druggists or pharmacy store proprietors in the sale of drugs, the dispensing of doctors' prescriptions, and the sale of patent medicines. The Bill was read a first time.

Alleged Smuggling of Morphia into China.

Mr. RAMSDEN asked the Secretary of State for the Home Department whether his attention had been called to the statement at the missionary conference at Swanwick, Derbyshire, to the effect that sufficient morphia was being smuggled into China annually to give every man, woman, and child three injections, and that the sources of supply were England, America, and Germany; and, if this was true, what steps were taken to abate the export.—Mr. SHORTT replied: My attention had not been called to this statement, and I do not know on what information it is based. The export of morphine from this country is prohibited, except under licence from the Home Office, and all possible steps are being taken to prevent its export for other than medical or scientific purposes. As, however, I have previously stated, the traffic can only be successfully controlled by international coöperation, and one means to this end would be the adoption and enforcement by all countries of the system of importation certificates which has been recommended by the League of Nations. I understand the Council of the League are urging the members of the League to bring the system into operation at an early date.

THURSDAY, JUNE 29TH.

Women Police Patrols.

The House went into Committee of Supply on a vote of £198,956 for the salaries and expenses of the Home Office and Subordinate Offices, Sir EDWIN CORNWALL in the chair.

Mrs. WINTRINGHAM moved to reduce the vote by £100 in respect of the salary of the Home Secretary in order to call attention to the question of the maintenance of the Women Police Patrol. She said that the churches, medical societies, and other organisations all felt that it would be very much to the detriment of the public if the women police were disbanded. The Geddes Report said that their work should not be charged to the police fund, because it was welfare work. But the official instructions stated that the women patrols might be employed in detecting offences in the "white slave" traffic and other offences under the Criminal Law Amendment Act, and they had done a very great deal of work in connexion with alien cafés, particularly where there were Chinese and black men. They had also assisted in criminal investigations with regard to the cocaine traffic, being able to go into places to which men had no access. The League of Nations was at present grappling with this great curse, and she thought that that in itself was a justification for the existence of these women patrols. Another duty which they could perform was the taking of statements in cases of alleged criminal assaults on women and children, which was highly skilled police work. At first 7 women and 8 sergeants were specially appointed for this work, but they were far too few. The number was to be reduced from 15 to 4, which meant that each person who took these statements would have charge of 40 police stations. Women police could also assist in conveying women and children to hospitals, workhouses, and police stations, as well as help in watching patients in hospitals who had attempted suicide. She had before her figures comparing the month of April, 1921, when the patrol was in full force, and April, 1922, when some of the women had been disbanded. In April, 1921, there were 312 cautions for indecency; in April, 1922, there were only 108. For soliciting there were 328 cautions in April, 1921, as against only 31 this year. The Geddes Committee did not have sufficient evidence before them, and their conclusion was in direct conflict with that of the Home Office Committee on this subject. The preventive work carried out by these women police lessened expenditure; it could not, however, be counted in cash, but was of vital importance to the State as making for the health and the morality of the nation.

Mr. R. MCNEILL in supporting the motion for reduction said no one who had followed the medical discussion which had been going on on the subject of venereal disease could fail to see the immense advantage to be derived from the fact that prostitutes who were diseased were more ready to communicate the fact to women police than they would be to male officers. In the precincts of the House on the previous day Members had been told by a group of experienced workers that hundreds of thousands of pounds might be saved to the country every year by the prevention of venereal disease. Something like 30 or 40 per cent. of the diseases treated in the hospitals could be traced to the incidence of venereal disease. Something like 50 per cent. of the venereal disease prevalent in London could be prevented if the "casual sinner" were increasingly reached by women police, as had been the case on a small scale in the past.

Sir A. STEEL-MAITLAND said that the loss caused by venereal disease every year was almost beyond calculation. There were nearly 9000 fresh cases of syphilis last year and over 11,000 cases of gonorrhœa were treated. If these cases were treated early they cost something between £2 10*s.* and £4 10*s.*, but if they were treated late they cost £160 a case.

Mr. SHORTT (Home Secretary), replying to the debate, said that the work of taking down statements from women and children in incest and indecency cases, investigating the dangerous drug traffic in women's lavatories, and so forth, had always been done by women and would continue to be done by women. He had looked round to see what possible economy he could make without touching the women police at all. He had reduced the male force to the utmost limit of safety. He had with the greatest possible personal regret come to the conclusion that he was not justified in keeping the whole of these women on the police fund. He thought that a reasonable arrangement was that the total number of officers in the women's force should be 20, which provided a nucleus upon which a new force could immediately be built up at any moment.

After further discussion the motion to reduce the vote was rejected by 174 votes to 83.

Education of Physically Defective Children.

Mr. MALONE asked the President of the Board of Education whether his attention had been drawn to the protest issued by the local education authorities regarding Circular 1245 announcing the restriction of the Treasury grant for the coming year towards the education of blind, deaf, physically defective, and epileptic children to the amount paid in the current year; whether it was the duty of the education authorities to make provision for these children; whether he was aware that there were large numbers of defective children for whom no provision had yet been made; and whether, in view of the importance of this matter to the future of the race, he would reconsider his decision to restrict the provision of education for these afflicted children.—Mr. H. LEWIS (Parliamentary Secretary to the Board of Education) replied: My right honourable friend is glad to say that it has been found possible to remove in nearly every case the restrictions on the number of defective children who may be sent to existing special schools by individual local education authorities. A circular on the subject will be issued to authorities during the next few days.

Special Diet Allowance for Pensioners.

Mr. GILBERT asked the Minister of Pensions whether he had recently withdrawn the special diet allowed to pensioners in tuberculosis and diabetes mellitus cases; and whether, since the withdrawal of these diets was a breach of faith to the pensioners concerned who received their pensions plus the special diets, and who would now be compelled to purchase such necessary diets from their pensions, he would withdraw the circular issued by his department cancelling these diets.—Mr. MACPHERSON replied: Additional allowances for special diet have not been withdrawn from pensioners suffering from tuberculosis or diabetes. The allowance is, indeed, expressly continued in these cases by the new Regulations when the rate of pension or allowances and other circumstances justify the grant. I may

add that the allowance in question is not provided for by the terms of the Warrants and has never been attached to any class of pension. No breach of faith is therefore involved by the modification of the Regulations.

Importation of Scientific Books.

Sir CHARLES OMAN asked the Secretary to the Treasury whether he was aware that whereas parcels consisting of single copies of scientific works, ordered by a private individual passed without paying any reparations duty if sent through the post, they were charged with the full 26 per cent. levy if sent in a parcel or box through the Customs department at Harwich: and whether this difference of practice was due to intention or inadvertence.—Sir J. BAIRD (Under Secretary to the Home Office) replied: I understand that the importation of a single copy of a book as cargo would be quite unusual, but if my honourable friend will give me particulars of any case he has in mind, I will have inquiry made as to the facts.

MONDAY, JULY 3RD.

Panel Practitioners and Medical Benefit.

Mr. FOOT asked the Minister of Health how many persons there were insured under the National Health Insurance Act; how many of those persons had not selected a panel doctor; what amount of money in respect of such persons not attached to any panel was distributed annually amongst panel doctors; how many doctors participated in the distribution; and whether there were any statistics showing what work was done or what number of professional attendances were given by the participating doctors in return for the money so distributed.—Sir A. MOND replied: The number of insured persons in England and Wales entitled to medical benefit is estimated at approximately 13,250,000. The number of names on the lists of insurance practitioners and approved institutions is slightly over 12,800,000. The number of insured persons who have not selected a doctor is on this basis 450,000, or 3½ per cent.; but in consequence of the difficulty of keeping any precise record of the movements of the insured population there is inevitably some inflation in the doctors' lists, and the actual number of unassigned persons exceeds this figure. But the vast majority of unassigned persons are those who neglect to select a doctor until they are in need of treatment and who then have a right to immediate treatment although not at the time on any doctor's list. Thus the panel practitioners collectively are at risk in respect of them. The number of insured persons who do not avail themselves of their right to medical benefit when they require treatment is believed to be a relatively insignificant and diminishing fraction. The remainder of the question is based upon a misapprehension. Under the agreement with the doctors there is no such division of the practitioners' fund as the hon. Member suggests. The total sum available in any area is based upon the total number of insured persons for whose treatment, irrespective of the numbers assigned or unassigned, the practitioners in the area are collectively responsible. The available statistics as to the work done by insurance practitioners do not distinguish between patients who were or were not on the list of the practitioner at the time treatment was given.

National Health Insurance Bill.

The National Health Insurance Bill was read a third time.

TUESDAY, JULY 4TH.

Heavier Dangerous Drugs Penalties.

Colonel NEWMAN asked the Secretary of State for the Home Department whether he had considered means by which severer penalties should be imposed upon those responsible for the introduction and disposal of harmful and insidious drugs and narcotics.—Sir J. BAIRD replied: I hope before long to introduce a short Bill increasing the penalties which may be imposed under the Dangerous Drugs Act.

Pensioners and Special Treatment.

Mr. GEORGE BARKER asked the Minister of Pensions if he was aware that the Abertillery and district local committee, at a meeting held recently, passed a resolution stating that they viewed with considerable alarm the apparent tendency of the medical officers of the Ministry to certify men as fit for work, and as not requiring treatment, after the pensioners' panel doctors had already certified them as unable to work and in need of treatment, and asking that immediate steps be taken for the issue of instructions which would ensure the men receiving the treatment which they required; and would he, in the interest of these disabled ex-Service men, take the necessary measures to give effect to the resolution passed by the committee.—Major TRYON replied: My right hon. friend is aware of the resolution referred to, which appears to be based on a misapprehension. Medical officers of the Ministry are required only to certify whether or not a man needs a course of special treatment, and whether he will, in consequence of that treatment, be unable to work and so become eligible for allowances under Article 6 of the Royal Warrant. The question whether in any individual case the man needs special treatment which it is not within the competence of the insurance practitioner to give is, and must be, one entirely for the judgment of the medical officer of the Ministry who examines the man. My right hon. friend has no reason to doubt that the instructions in force provide for every man duly receiving the treatment necessitated by his case in accordance with the provisions of the Royal Warrant.

Appointments.

GOODWIN, A., M.D., B.S. Lond., F.R.C.S. Edin., has been appointed Gynæcologist to the Eastern Dispensary, Leman-street, E.

GOSSE, A. H., M.D., B.Ch. Cantab., M.R.C.P. Lond., M.R.C.S., Physician in London to the Royal National Hospital for Consumption, Ventnor.

LEITCH, MARGARET J. T., M.B., Ch.B. Glasg., Assistant Medical Officer, West Middlesex Hospital, Isleworth.

SCOTT, HILDA D., M.B., Ch.B. Edin., Junior Resident Medical Officer, the Children's Hospital, Sunderland.

LEE, S. W. T., M.B., B.Ch. Belf., has been transferred from the Rhodesian to the Uganda Medical Service.

All Saints Hospital, Vauxhall Bridge-road: LOUGHMANE, S. M., F.R.C.S. Eng., GRIFFITHS, H. E., M.S. Lond., F.R.C.S. Eng., Surgical Registrars: BRACKEN, J. P., M.R.C.S., L.R.C.P. Lond., D.R.M.E. Cantab., Radiologist: BURY, G. E., M.B., B.S., House Surgeon.

Certifying Surgeons under the Factory and Workshop Acts: BARKER, G. L., L.R.C.P. Lond., M.R.C.S. (Cerrig-y-Druidion): MOORE, W. B., M.B., Ch.B. Glasg. (Kilbirnie): HALE, J., L.R.C.P. Lond., M.R.C.S. (Cobham).

Vacancies.

For further information refer to the advertisement columns.

Barnsley and Wakefield Joint Sanatorium.—Asst. Tubere. O., &c. £400.

Barnstaple, North Devon Infirmary.—H.S. £170.

Birmingham, Ministry of Pensions Hospital, Moseley.—Two M.O.'s. £350 each.

Birmingham University.—Professor of Pathology. £1000.

Bootle Borough Hospital.—Sen. and two Jun. H.S.'s. £200 and £150 each respectively.

Bury Infirmary.—Jun. H.S. £150.

Carshalton, Surrey, Queen Mary's Hospital for Children.—Sen. Asst. M.O. £645 5s.

City of London Hospital for Diseases of Chest.—Physician.

Doncaster Royal Infirmary and Dispensary.—Sen. H.S. and Jun. H.S. £220 and £175 respectively.

Exeter, Royal Devon and Exeter Hospital.—Asst. H.S. £150.

Exminster, Devon Mental Hospital.—Locum Tenens. £7 7s. per week.

Freemasons Hospital and Nursing Home, 237, Fulham-road, S.W.—Res. M.O. £250.

Frere Hospital, East London, South Africa.—Res. M.O. £350.

Gillingham, Kent.—M.O.H. £750.

Gloucestershire Royal Infirmary.—Asst. H.S. £150.

Guy's Hospital, S.E.—Chief Clin. Asst. and Registrar. £100.

Hospital for Consumption and Diseases of Chest, Brompton, S.W. H.P. £50.

Leeds General Infirmary.—Res. Ophth. O. £120. Ophth. and Aural H.S. £50.

Liverpool University.—Lecturer in Pathology. £500.

Macclesfield General Infirmary.—Sen. H.S. £200.

Manchester, Ancoats Hospital.—Hon. Radiologist.

Manchester Royal Infirmary.—Res. M.O. and Asst. M.O. £200 and £100 respectively.

Miller General Hospital for South East London, Greenwich-road, S.E.—H.P. and H.S. Each £150.

Newcastle-upon-Tyne Hospital for Sick Children.—Jun. Res. M.O. £150.

Norfolk Education Committee.—Asst. Sch. M.O. £500.

Nottingham General Hospital.—H.S. £200.

Plymouth Guardians.—Res. M.O. £300.

Plymouth, South Devon and East Cornwall Hospital.—Hon. Anæsth.

Preston and County of Lancaster Royal Infirmary.—Res. Surg. O. £225.

Prestwich, County Asylum, Manchester.—Locum Tenens. £8 8s. per week.

Queen Mary's Hospital for the East End, Stratford.—Hon. M.O.

Royal Free Hospital, Gray's Inn-road, W.C.—H.P. £50. Also Clinical Assts.

Royal National Orthopædic Hospital, W.—H.S. £150.

Royal Northern Hospital, Holloway, N.—Res. M.O. £250.

Sheffield Royal Infirmary.—Ophth. H.S. £150.

Southampton, Royal South Hants and Southampton Hospital.—H.P. £150. Jun. H.S. £150.

South Shields, Ingham Infirmary.—Sen. and Jun. H.S.'s. £200 and £150 respectively.

West Bromwich and District Hospital.—Res. Asst. H.S. £180.

West London Hospital, Hammersmith-road, W.—Hon. Med. Radiographer.

Westminster Hospital, Broad Sactuary, S.W.—Asst. H.P. and Asst. H.S. £52.

West Riding County Asylum, Wadsley.—Fourth Asst. M.O. £400.
Wigan, Royal Albert Edward Infirmary.—Jun. H.S. £175.
The Chief Inspector of Factories, Home Office, London, S.W., announces the following vacant appointments:—Mount Sorrel (Leicester); Oxted (Surrey).

Births, Marriages, and Deaths.

BIRTHS.

ATTENBOROUGH.—On June 25th, at The Ridges, Farnborough, Hants, the wife of Dr. Wilfrid Attenborough, of a son.
BARNES.—On June 26th, at Wiltshire House, Wiltshire-road, S.W., the wife of Howell Wood Barnes, B.A., M.B., B.Ch. Cantab., M.O.H. Metropolitan Borough of Camberwell, of a daughter.
DICK.—On June 24th, at Walton Lodge, Walton-on-the-Hill, Surrey, the wife of F. A. Dick, M.B., of a daughter.
GOSSET.—On June 25th, the wife of Dr. A. C. V. Gosset, Marine-terrace, Margate, of a daughter.
SWANN.—On June 30th, at Fulbrooke-road, Cambridge, the wife of M. B. R. Swann, M.B., B.Ch., of a daughter.
WOOLER.—On June 24th, the wife of E. W. Nowell Wooler, M.B., Ch.B., of St. John's House, Cleckheaton, Yorks, of a son.

DEATHS.

MACKENZIE.—On June 23rd, at Caerphilly, after short illness, Kenneth Child Mackenzie, M.D., of Cheadle, Staffs, aged 55 years.
OGILVIE WILL.—On June 29th, at a nursing home, after an operation, John Charles Ogilvie Will, M.D., F.R.S.E., J.P., of Bonaccord-square, Aberdeen.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Medical Diary.

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

UNIVERSITY OF LONDON SEMON LECTURE, Royal Society of Medicine, 1, Wimpole-street, W.1.
WEDNESDAY, July 12th.—5 P.M., Prof. H. S. Birkett (McGill University): The Development of Trans-Atlantic Rhino-Laryngology.

FELLOWSHIP OF MEDICINE POST-GRADUATE LECTURES, 1, Wimpole-street, W.1.
WEDNESDAY, July 12th.—5 P.M., Prof. A. H. Todd: Surgery in Rheumatoid Arthritis.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.
MONDAY, July 10th.—10.30 A.M., Mr. Maingot: Surgical Pathology. 2 P.M., Mr. Sinclair: Demonstration, Surgical Wards. 5 P.M., Dr. Arthur Saunders: Summer Diarrhœa and its Treatment.
TUESDAY.—10 A.M., Dr. Paterson: Demonstration of Medical Cases. 2.30 P.M., Dr. Pritchard: Demonstration, Medical Wards. 5 P.M., Mr. Bishop Harman: Ophthalmia Neonatorum.
WEDNESDAY.—10 A.M., Dr. Arthur Saunders: Medical Diseases of Children. 2 P.M., Dr. Burnford: Demonstration, Medical Wards. 5 P.M., Dr. Simson: Modern Developments in the Management of Labour.
THURSDAY.—10 A.M., Dr. Grainger Stewart: Neurological Cases. 2.30 P.M., Dr. Arthur Saunders: Demonstration, Medical Wards. 5 P.M., Mr. Bishop Harman: Blepharitis.
FRIDAY.—12.15 P.M., Dr. Burnford: Applied Pathology. 2 P.M., Mr. Sinclair: Demonstration, Surgical Wards. 5 P.M., Mr. Maingot: Amputations of the Present Day.
Daily, 10 A.M. to 6 P.M. 2 P.M., Operations, In-patients.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.15.
MONDAY, July 10th.—4.30 P.M., Dr. J. Browning Alexander: Clinical Significance of Pulmonary Symptoms—Thoracic Pain.
TUESDAY.—4.30 P.M., Mr. C. H. Hayton: Intracranial Lesions of Otitic Origin.
WEDNESDAY.—4.30 P.M., Mr. N. B. B. Fleming: Eye Changes in General Diseases.
Daily, 2.30 P.M., In- and Out-patient Clinics, Operations, &c.

SOUTH-WEST LONDON POST-GRADUATE ASSOCIATION, St. James' Hospital, Ouseley-road, Balham.
FRIDAY, July 14th.—4 P.M., Dr. Swift Joly: Common Errors in Diagnosis in Regard to the Urinary System.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.1.
THURSDAY, July 13th.—4 P.M., Dr. Paterson: Summer Diarrhœa.

MANCHESTER FRENCH HOSPITAL, 24, Acomb-street, Whitworth Park, Manchester.
THURSDAY, July 13th.—4.30 P.M., Mr. A. C. Magian: Post-Graduate Lecture on Fibroids.

Notes, Short Comments, and Answers to Correspondents.

FURTHER EXPERIENCES IN COLONY TREATMENT AND AFTER-CARE.

BY THE RIGHT HON. SIR CLIFFORD ALLBUTT, P.C., K.C.B., F.R.S., F.R.C.P. LOND.,
PRESIDENT OF PAPWORTH COLONY, CAMBRIDGESHIRE;
AND
P. C. VARRIER-JONES, M.R.C.S. ENG.,
MEDICAL DIRECTOR OF PAPWORTH COLONY.

PART I.—THE TYPE OF CASE WE HAVE TO TREAT, AND WHY.

FROM time to time we are confronted with articles in the medical press either bewailing the lack of "early" cases for treatment in our sanatoriums, or urging the need for earlier diagnosis, or even blaming the panel doctor for his neglect in this respect. For example, Dr. N. D. Bardswell writes: "The sanatorium superintendent complains that the admission to his institution in any number of cases beyond the early stage brings discredit upon a method of treatment which is most valuable if intelligently used."[1] When it is remembered that for many years Dr. Bardswell was medical superintendent of a large institution, it may be accepted that he is here expressing the opinion of superintendents of sanatoriums, with full knowledge of the kind of cases for which they call. It is obvious that, if sanatoriums were designed for the reception and treatment of early cases only, superintendents might justly rule that early cases only should be admitted. Dr. Bardswell is of opinion however that if early cases only were admitted "not a third of the existing sanatorium accommodation would be occupied." We can bear out this statement fully; for after many visits to various sanatoriums in this country we have come to the conclusion that not only 66 per cent. but from 90 to 95 per cent. of the cases found in these institutions were on admission well past the first stage of the disease. Figures published by the London County Council and other local authorities bear out this opinion. This extraordinary state of affairs leads inevitably to the conclusion that a large amount of accommodation has been provided for cases which either do not exist or are not available for treatment. We have then large institutions provided all over the country for the treatment of hypothetical cases but for the last ten years have been compelled to try to bring other cases into a system which—judging by the results of sanatorium treatment (published from time to time by Dr. Bardswell and others)—is unsuited to meet the demands made upon it. We may well ask ourselves how such an error has come about.

The answer lies in the ever-recurring story of insufficient preliminary study of the facts. Influenced by the notions of certain German enthusiasts and their disciples, we in Great Britain followed their directions and attempted to conform to their hypotheses; and, encouraged by some apparent success, we provided sanatorium accommodation lavishly. Gradually it was brought home to us however that the effects were not so brilliant as was represented; and before long the sanatorium and its methods came to be held up to scorn, because it was assumed that all cases sent to a sanatorium were early cases, and were dealt with as such. Our vision was not clear enough to see that, for the treatment of the cases *actually sent* to sanatoriums, these institutions were more or less unfitted. Furthermore, the question arose, "If excluded from the sanatorium, what is to be done with the cases which no longer belong to the best type of sanatorium patient?"[2] Nay indeed we might ask also "What is to be done with the sanatorium provided for the hypothetical case?" Before we proceed to discuss these important questions let us see whether we were wrong in supposing that our sanatoriums could be filled with the "right kind" of cases, or whether our error was indeed a fundamental one, that except amongst the well-to-do, few, if any, such cases are available for institutional treatment?

Unsuitable Cases.

We have said that it is a constant matter of remark and regret by medical superintendents of sanatoriums—we are speaking of the public sanatoriums in this country—that few, if any, suitable cases are sent to their institutions for

[1] Bardswell, N. D.: Tubercle, vol. iii., No. 2, November, 1921.
[2] Bardswell: Loc. cit.

treatment; and, being convinced that the matter is one of pressing importance, we have asked the medical superintendent of a large *private* sanatorium in England whether the cases which he received for treatment were such as he required. He replied that by far the larger number of admissions were in phases of middle and advanced disease, quite unsuitable for residence and treatment in a sanatorium. How, then, did these unsuitable cases get there? Obviously in this class it was not the fault of the panel doctor, for these well-to-do people either took advice from the Harley-street physician or decided for themselves. When superintendents of sanatoriums complain that, rich or poor, the wrong phase of case is sent to them; we ask how this perversion of our means has come about. The artisan is attended by his panel doctor, who, as a rule, is made the scapegoat for the "non-notification" of the early cases of pulmonary tuberculosis; the well-to-do patient is attended and advised by a physician presumably skilled in the disease; but from both quarters the patient arrives at the sanatorium too late. The main cause of failure cannot therefore be attributed to the lack of skill of the family physician or consultant. It is indeed evident otherwise, from many indications, that such is not and cannot be the cause of failure. In the first place, let us remember that we are dealing not with cattle but with human beings, with individuals with wills of their own—a momentous condition when residence and long courses of treatment are considered. Again, medical men cannot diagnose cases they do not see; and only too often *neither panel doctors nor consultants see the really early case of pulmonary tuberculosis.* The exceptions to this rule are that small number of cases of the right kind over which the superintendents of sanatoriums may occasionally rejoice.

Difficulty of Early Diagnosis.

How is it then that medical advisers do not see the early cases? The reasons are many and intricate; in the early case the symptoms are few, so that, generally speaking, the warning signals are passed over as trivial or transient, even by the patient himself. We pride ourselves on being a hardy and "common sense" people; we can "put up" with things. That tired feeling, on which Sir James Kingston Fowler lays so much stress as an early sign of pulmonary tuberculosis, is resisted; we urge ourselves to "carry on." Indeed, we feel proud that we can "throw off a cold," as we have thrown off many a one before. We do not believe in "running off" to the doctor as soon as we feel out of sorts. Our pride, and later perhaps our fear, prevent us from seeking medical advice. So follows the usual story: impelled against our will, persuaded by our relatives and friends, we seek advice but, from the sanatorium point of view, too late. The usual rebuke, "You ought to have come before," falls on deaf ears; in the world, as we know it, we should have done the same ourselves; we likewise should have stuck to the post of duty—duty to our family, duty to our business, duty to the State. Indeed is it not better to be of such a temper rather than timid, or hypochondriacal, or alarmed by any passing ailment? Really the early symptoms of pulmonary tuberculosis are so vague that at first the patient's attention is not seriously challenged by them. Thus it is then that the consulting physician and the family physician too often never see the patient until the disease has done much of its insidious work, until advice and treatment are no longer easy, but must now be carried out at second best as may be practicable. If a man who can afford to be laid up neglects to take timely advice, or to undergo timely treatment, how much more excusable is it in a man who has wife and children dependent upon him for their daily bread? For this man the diagnosis of pulmonary tuberculosis reveals a calamity. He cannot afford to leave home for an indefinite length of time. Who is to keep the home together? Will his job be open to him on his return? If not, how then is he to earn his living? We have pointed out before that the actively sympathetic employer is rare; and, be the phase of disease early or late, slackness in mill or factory is too often rewarded by dismissal. The reasons, then, for the failure of early diagnosis lie in "human nature" and in economics. Is it not because in the case of the well-to-do we have ignored the human factor, and in the case of the working man the economic, that we have built up a system for the treatment of patients at an early stage when they do not, and so far as we can see at present will not, come up for treatment? For such cases our large sanatoriums are waiting; and wait in vain!

But—it may be said—surely if the tuberculosis officer now examines all "contacts" and, sometimes on slender evidence, diagnoses a "contact" (of patient X) as a case of early tuberculosis, he helps to provide for the superintendent of the sanatorium; though meanwhile the "middle case" is to remain at home, to provide more "contacts" for the sanatoriums. Unfortunately however, as already noted, "contacts" are not keen about playing this part; if persuaded to go away they may rue their weakness in consenting to leave home; and then comes another bitter cry that patients will not stay long enough for the cure to be completed. In other words, we are forcing our system on the patient, not moulding it on his own needs or desires.

The tuberculosis service, as carried on in this country, we have discussed elsewhere;[3] but at present we must point out another difficulty which keeps the early case out of the sanatorium—namely, the desire for concealment on the part of the victim who, unwilling to consult even his own physician, objects still more to be examined by an official; and therein he is not without the sympathy of his own physician. It is a matter of experience that 25–55 per cent. of the cases of pulmonary tuberculosis remain unnotified to the local authority, and the cases notified are for the most part from those on the lower rungs of the social ladder. On the higher rungs the notifications gradually become fewer, and finally, near the top, cease altogether. Are we to assume then that in the higher social scale tuberculosis is rare or unknown? Personal observation teaches us that this is not so; that the condition is recognised, but is too vexatious to be faced boldly and at once.

Two Camps of Medical Men.

We are convinced however that if we are to avoid building more sanatoriums for the hypothetical early case, and other errors positive and negative, the time has come when every case must be faced boldly. The truth is we must recognise frankly the two camps—each strong and determined to have its own way—one containing the army of general practitioners, the other the army of State-paid officials; these armies that neither combine nor coöperate. The atmosphere in which the public tuberculosis regulations are carried out is charged with warring elements. The tone of these regulations and the method by which a young and comparatively inexperienced medical man may be placed in a position of authority over his neighbour, is wrong. The personal relations may be friendly enough; a consulting physician and his junior meet socially on equal terms, and medically on equal terms, but official interference between the patient and his medical adviser brings in elements of mistrust. Speaking generally, from the very nature of things as they exist to-day, little help will be sought by the medical profession from that part of it which is purely official. The two camps are not at this moment openly hostile, but no one who moves among medical practitioners in various districts is unaware of this sense of mistrust, much as it is to be regretted; the division is an artificial one and cannot last. This feeling of mistrust, or only of aloofness, or lack of coöperative spirit, is, for the present, a potent reason why cases sent for sanatorium treatment are of the kind which sanatorium physicians call "unsuitable"; and why in so large a percentage of cases no notification is made. Over and over again, in reports of medical officers of health, it is recorded that the services of the tuberculosis officer are not used by the medical men in the district. It is not a matter of personal feeling; the principle is wrong. As long as human nature is what it is, as long as the practice of medicine calls for "resourcefulness, adaptability, common sense, tact, and imagination"[4] so long will there be some lag in coöperation with the official who is too often lacking in, or tends to lose, those qualities which Sir George Newman regards as essential to the general practitioner. This lack is no fault of the official; the fault lies in the system under which he works.

"The medical practitioner is individualistic in upbringing and in genius. He should safely hold the secrets of his client, and he should have ample opportunity of rendering the full personal worth of his counsel to his patients. The social and individual relationship between doctor and patient is invaluable in the treatment of disease. His responsibility and his growth in individual worth are of first-rate importance."[4]

"Any change, whether effected from within or imposed from without," writes Sir John Tweedy, "that restrains the liberty or lessens the responsibility of a medical man, or hampers the free play of his intellectual activities will be detrimental to the authority and usefulness of medicine and prejudicial to the interests of public health and national welfare."

Is the public health medical official allowed scope for his individual freedom? We all know that he is hampered at every turn; he is diffident in expressing an opinion; he is not permitted to make a move forward without the sanction of a lay committee, a sanction which, if obtained at all, may take months to secure. We hear again and again how heavily lies the rigid hand of officialism upon the young medical man in the public service. So gradually he adopts the official attitude, and for the rest of his official life the very essentials laid down by Sir George Newman grow dormant in him. Small wonder that the two camps fail to coöperate; but the result is "detrimental to the authority and usefulness of

[3] THE LANCET, 1921, i., 256.
[4] Sir G. Newman, Annual Report, 1920.

medicine, and prejudicial to the interests of public health and national welfare."

Let us then no longer, looking on the surface, pick out this and that superficial reason for the lack of driving power and failure of progress in the tuberculosis campaign; the reasons, let us repeat, are (1) factors inherent in human nature; (2) economic factors; and (3) drawbacks due to the present ill-advised combination of individual and official medicine. These, added to others more usually given, sufficiently explain our want of success. Just as the treatment of tuberculosis depends upon basic principles and not upon lenitives, so the organisation for the early detection of tuberculosis must be rebuilt on ground which, from the experience of past and present, we can recognise as solid. A valuable experiment in reconstruction is being carried on under the guiding hand of Sir James Mackenzie at St. Andrews. Working from fundamental principles, making each step secure before proceeding to the next, a system of the practice of medicine is being evolved which may displace the present dual control.

PART II.—METHOD OF TREATMENT.

The lay mind has always desired and looked out for direct "cures" for every disease. The word "cure" acts as a spell; it obscures and throws into the background all questions as to the origin of disease. For most people prevention has far less fascination than "cure." Hope is stirred to the depths by the report of a "cure" for consumption, though a report of prevention leaves most people cold; we wish to consider ourselves immune to every disease, until we are struck down.

Unfortunately, this ever-present expectation of a "cure" for this disease or that blinds mankind to methods of prevention. In the sphere of tuberculosis this attitude of mind is strikingly illustrated. How often do we see the poor spending their hard-earned savings on so-called "cures," neglecting altogether the simplest precautions against the advance and spread of the disease, and ignoring the simplest hygienic rules for their own relief and for the guidance of others. The attitude of public bodies is not very much better; consequently campaigns for the prevention of disease are never taken up more than half-heartedly. We do not realise that almost all recent advances in medicine have been along the lines of prevention. The old proverb, "Prevention is better than cure," has our lip-service, while secretly we are looking for the specific "cure." As civilisation progresses, and knowledge increases, we shall see that it is a poor method to attempt to make good a damage which should never have arisen. The popular part then is undoubtedly that of the cure-monger; but in dealing with tuberculosis the more practical part is that of the man who, while recognising the damage done by the disease, is skilled enough to estimate for his patient how his work may be so regulated as to prevent further mischief, to promote repair, and gradually to restore the foundations of health. If total prevention fail, this is the perspective of the treatment of disease. We can still prevent so far as to eliminate adverse factors and subsidiary causes; and by a prescribed mode of life call forth a salutary and not too exacting response.

The most difficult patient is the man or woman in whom the disease has had its way for some considerable time and in whom permanent damage has been done. The damage reveals itself in various ways: to himself by discomfort, breathlessness, and sense of fatigue; to his friends by cough, frail or hectic appearance, emaciation, and other signs of advancing disease. Let us then consider the tuberculosis problem as it presents itself to-day. Were the main problem of tuberculosis, as we continually pretend, to treat the early case, and this only, why all these schemes for after-care, farm colonies, and the like? The sanatorium, with its adjunct the dispensary, should meet all requirements. But this prospect we now know to be a figment of the imagination; the reality is much uglier. It forces itself upon us and makes us unjustly denounce the failure of sanatoriums and dispensaries. We must re-examine the position. The popular opinion, built upon certain findings of pathologists in laboratory work that tuberculosis is a fairly curable disease, does not stand the test of clinical results. "We know of the practical universality of tuberculosis of the tracheobronchial nodes; we know that the small parenchymatous focus is very common. This focus, with its enlarged regional hilum nodes, and with the peribronchial and perivascular lymphangitis about the vessels which connect focus and nodes, presents a complete pulmonary tuberculosis in miniature. We know that localised thickenings of the lines which proceed to the lower lobes from the hilum are very frequently seen. Such thickenings are often ascribed to other causes. Their tuberculous nature is proved if, as is often the case, the thickened lines are accompanied by dots which can hardly be accounted for as anything else than tuberculous lymph nodes. When did the process run its course, this deep tuberculosis now soundly healed? What is the significance as to prognosis? How frequent is it?"[5] Now the small fibrosed nodule is a different thing from the clinically diseased lung and, if we are to argue from one to the other, care must be taken to view the two processes in the right proportion. Nature's capacity to heal when the process of disease has just begun must be very different from her ability to do it when the disease has passed a certain stage. Nature tries to catch up in the race, and sometimes succeeds; but too often in the long run she is beaten. How different is the picture of the treatment of early tuberculosis from that observed day in and day out in a tuberculosis dispensary, where seriously damaged patients are crowded together, waiting for the cure which never comes; supported by small doles of food and medicine they prolong a pathetic and fruitless existence with nothing but failure and disappointment at the end of it. Little or no effort is made to provide conditions permanently suitable for their relief, and for the most part they are left to drift, or are beguiled by ignorant advisers to embark on reckless adventures.

Must we not then confess that the system of tuberculosis dispensaries and sanatoriums, as now carried on, is founded upon a wrong reckoning? Let us realise that the early cases we talk of are not early cases.[6]

"Because of the assumption that the tuberculous lesion found, we will say, in the apex, is the sole expression of the tuberculosis; that it is *recent* because *recently discovered*, and that it is active because recent, we are in danger of laying too much stress upon incipiency and too often confuse the incipient lesion with the obsolete. We, as clinicians, do not always give due weight to the fact that the X ray usually shows the existence of a deep tuberculosis—a chapter in the history of the disease which is sealed to us so far as practical application of our knowledge is concerned. As therapeutists we practically ignore the deep-seated forms of tuberculosis which, whether they may be benefited by treatment or not, almost never as a matter of practice receive such treatment until too late."[7]

Such is the question at issue. If we are to recognise the classification, as quoted in the note, simply as a convenience for the routine of an institution, well and good; but do not let us fall into the error that such a classification, with divisions labelled 1, 2, and 3, means that the case is an early one in respect of the length of time the disease has been at work or so far as prospect of amendment is concerned. Many cases labelled as Stage 1 fail as fast, if not faster, than many of those labelled Stage 2. If we mean that the signs at the apex are those which we are able to discover first, well and good; no other significance can be attached to them unless we intend to give more ground for complaint that "the case was unsuitable for sanatorium treatment."

This difficulty of attempting to classify cases of pulmonary tuberculosis by means of physical signs has led us to see that other evidence or signs of disease must be taken into consideration also; another classification, therefore, that of so-called "systemic effect," has been proposed. The study of systemic phases, so far very imperfectly followed up, has led to the anomalous position of reckoning, under the stages 1, 2, and 3, subdivisions *a*, *b*, and *c*; which surely amounts to a confession of failure to estimate the degree of disease in any patient. Of the causes of "systemic effect" we are ignorant; we observe the results only—such as temperature, pulse-rate, and effect on nutrition and strength. But the knowledge we need is of the contributory causes. The apparent extent of the lesion of the lung offers at least some approximate notions of the extent of the original and contributory causes; but let us confess frankly that no true estimate is at present available; yet on this sand we have built up a vast edifice of treatment. No wonder the results are strikingly disappointing. When the so-called early case does not do well we console ourselves by saying that no system yet devised by man is infallible; whereas we ought to give more time and pains to the determination of the early stage. At present our classification is worse than worthless, inasmuch as it has led us astray both in treatment and prognosis and away from the right method of dealing with cases as they are, not as they may seem to be. Our attempts to "cure" tuberculosis have failed, and the general public is finding out our failure, for by bitter experience every family is learning how A, B, and C returned from the sanatorium looking well and fit, but that in a very short time their disease, slackened in its pace at the sanatorium, reasserted itself and could not be stayed.

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[5] Bushnell, George: American Review of Tuberculosis, vol. v., No. 7, September, 1921.

[6] Cf. the classification as arrived at by the Society of Superintendents of Tuberculosis Institutions. "Lesion of slight severity affecting at most the apices of both lungs not lower than the spine of the scapula and the clavicle on each side, or the apex of one lung not lower than the second rib in front of the spine of the scapula behind."

[7] Bushnell: Loc. cit.

Let us, moreover, develop a system to ensure that the patient shall have his life ordered in such a way that response to effort can be controlled and its excesses prevented. In other words, let us see to it that the slowing down of the disease process, begun at the sanatorium, should be carried forward indefinitely. Most of us have already ceased to look upon sanatoriums as cure houses; is it not then time we put our principles into action?

In our position at Papworth Colony we have been able to observe very accurately, and to keep under observation for a considerable time, now running into years, the kinds or stages of cases admitted to sanatoriums as "early"; and we have followed the later history of these cases very carefully. The relapse after sanatorium "arrest" is due to the return of the patient to undesirable surroundings and to competition in the outside world with healthy labourers. When such a patient is admitted to Papworth direct from a sanatorium we find that his case cannot in any way be regarded as one of "disease arrested." In no single instance had the disease been *arrested*. Startling as this result may be, it is warranted by the examination of these cases, not by one person only, but by several; and these physicians of long training in sanatoriums and chest hospitals; so all possible error of personal observation is eliminated.

The So-called "Failure" of Sanatorium Treatment.

Now what does this experience mean? In the first place, as we have pointed out, early cases admitted to sanatoriums (on the showing of medical superintendents themselves), if they exist at all, are very few in number; small wonder then that they do not reach the Colony. Or it may be said that the true "early case," after the usual short stay at a sanatorium, considering himself fit and strong, may under economical pressure be forced to return to his former work and environment. A certain percentage of these early cases, without symptom or definite signs, undoubtedly do so return to work after the customary short period of treatment; and no more is heard of them until they return with well-marked disease. The absence of cases amongst patients, who have spent no inconsiderable periods at a sanatorium, which could be called "arrested," must mean that under sanatorium conditions arrest is not attained. What is attained is a retardation, a less rapid advance of the disease in the lung with an amendment of the patient's general condition. Such is the usual picture of a patient passed from a sanatorium to the Colony. In the issue of the *Burnley News* for May 17th, 1922, Dr. T. Holt, the medical officer of that borough, reports on the comparative failure of the sanatorium, and advises his council not to build one. He says that the treatment brings about at best a temporary amelioration, to be lost again when the patient returns to his home and occupation; and that thus the period of case infectivity is lengthened. The sanatorium method then retards the progress of the disease in varying degrees; a certain amount of fibrosis is established; but in the majority of cases, on careful search, an active focus is usually found, and when the patient for some reason or other has to return to unfavourable conditions, this active focus breaks out again. Such is the so-called "failure of sanatorium treatment." So long as the patient continues to follow the prescribed mode of life the onward march of the morbid processes is imperceptible; but as soon as this mode of life is relinquished, the disease reasserts itself and the march is renewed. A slight departure from routine seems sufficient to quicken the pace; but not till then may it be detectable by clinical methods. No doubt in the majority of such cases (we are not now speaking of the hypothetical "early case") the hard manual work undertaken, even in some sanatoriums, is detrimental. Frequently the apparently arrested case is discharged from the sanatorium before the effect of this work is observed, but it becomes evident enough when the patient is admitted to a colony. As a rule, a start has to be made again at the beginning; and not until many weeks, sometimes months, have been passed in quiescence or absolute rest, is it safe or desirable to transfer the patient to the workshops; and then only for carefully graduated effort.

In our opinion, based upon the precise records of the after histories of such patients, the amount of hard manual work prescribed is too often excessive and rarely beneficial. The method is based on the fallacy that manual work can, or may "cure" the disease. It does nothing of the kind. We have to find out under what conditions a damaged organ may "carry on" effectually, and just how much, and what kind, of work can be performed by the organism as a whole without recrudescence of the disease. If the problem were attacked from this angle, we should not be called upon to give factitious explanations of the imperfection and want of success of our present methods of treatment. We are far from declaring that the sanatorium is useless, but it must play a new and different part in the campaign against tuberculosis, a part which it is not now our duty to describe.

COLONIAL HEALTH REPORTS.

Malta.

Field-Marshal Lord Plumer, Governor of the Colony, in his report for the year 1920–21, states that the civil population on April 1st, 1921, was 213,024. The birth-rate for the year was 31·98 per mille and the death-rate 21·51 per mille. The death-rate among children under 12 months was 224·11 per 1000 births. The mortality at ages 0–10 from acute nephritis rose to 52 from 15 in the previous 12 months. It is noteworthy that, concurrently with an epidemic incidence of scarlet fever, there was a marked increase in notified cases of erysipelas and of child-bed infections. Another feature of the medical history of the year was a sharp outbreak of tonsillitis amongst the adult population in the towns and immediate suburbs of Malta. The disease was more protracted and the functional symptoms more severe in persons with chronic enlargement of the tonsils and of the pharyngeal lymphatic tissue. No death was registered except in a case in which septicæmic symptoms supervened. Nine cases of encephalitis lethargica were reported; two were very mild attacks; three cases were attended with fatal results.

The charitable institutions maintained by the Government include six hospitals, an orphanage, a lunatic asylum, a poor-house, and 28 Government dispensaries; gratuitous midwifery assistance is given, and subsidies are granted to certain institutions run by private bodies or individuals. The number of patients who received treatment for pulmonary tuberculosis at the Connaught Hospital was 239, of whom 51 were discharged at their own request, 16 as cured, 7 as "improved," while those that died numbered 85, leaving 80 in hospital on March 31st, 1921. Tuberculin is used in the diagnosis and treatment of the disease, but the percentage of cures is not high because, as a rule, the disease is far advanced when patients seek admission. Of the 161 cases admitted during the year eight were in the first stage, 12 in the second and third stage, and 141 in the last stage of the disease. In connexion with the Leper Hospital, it is pointed out that compulsory segregation of lepers is enforced under the existing law, the sexes being kept separate. Patients who do not show signs of progress of the disease clinically and give constant negative bacteriological results are discharged, subject to control and periodical examination by the Leprosy Board. Compulsory segregation has been general since 1912. The highest number of lepers recorded was 112 in 1917, since when there has been a gradual decrease. On March 31st, 1921, the number of lepers was 81—49 males and 32 females. Reckoning on these figures, the incidence of leprosy is 35 to 100,000. Injections of chaulmoogra were for some time used on a large scale, but have been superseded by Sir Leonard Rogers's injections of sodium morrhuate. Forty-seven patients have been so treated, and after some months improvement has in a few cases been observed in the anæsthetic, mixed, and tuberculous types. Marked improvement has been observed in some cases, and in a few instances hopes are entertained of a permanent cure.

Ceylon.

From the annual official report for 1920 prepared by Mr. C. H. Collins, third Assistant Colonial Secretary, it appears that the population of the island is now about 4,500,000, of whom 627 per 1000 are Sinhalese, 300 per 1000 Tamils, 58 per 1000 Moors, 6·2 per 1000 Burghers, 3·9 per 1000 Malays, 1·5 per 1000 Europeans, and 3·4 per 1000 members of other races. The number of persons married per 1000 of the estimated population, exclusive of the Muhammadan population, was equal to a rate of 9·8, as against 8·6 in the previous year, and 11·6 the average rate of the preceding ten years. The economic distress in the country has in no small measure contributed to the low marriage-rate for the last two years. The births registered in 1920 numbered 163,720, equivalent to a rate of 34·3 per 1000 of the estimated population, as compared with an average rate for the past decade of 37·7. The death-rate for the year was 27·9 per 1000, showing an improvement on the average rate of the past decade of 2·0 per 1000 persons. The comparatively low rate for the year under review indicates that the country has more or less returned to normal health after the severe influenza epidemic. The mortality on the estates, too, was lower than in 1919. Deaths from influenza numbered 3643, as against 22,814 in 1919 and 19,102 in 1918. Deaths from pneumonia, which in the majority of cases was but a complication of influenza, also decreased appreciably, the numbers being 6666 in 1920 as compared with 9200 in 1919. During the year the plague caused the deaths of 319 persons (of which 209 occurred in the city of Colombo) as against 79 in 1919. One hundred and thirty deaths were registered from cholera, all of which were in the first quarter of the year, excepting two in the second. Several of them were reported from Badulla and Batticaloa, due probably to infection from

Hambantota district, where the disease prevailed during the latter part of 1919. Two hundred and sixty-one deaths, as against 224 in 1919, were due to snake bite, and 227 deaths were attributed to homicide and 249 to suicide. Thirty-nine deaths were registered as due to judicial hanging. The campaign against ankylostomiasis which was begun in 1916 by officers of the International Health Commission, who are doing excellent work in Ceylon in conjunction with the civil medical department, was continued. 126,529 persons were treated, of whom 96,477 were cured. A number of temporary dispensaries have been opened and large numbers of patients have been treated in this way. There are on the island 86 Government hospitals, including one for lepers and one for chronic cases of tuberculosis, equipped with modern hospital furniture and surgical appliances. There are in addition 463 Government outdoor dispensaries. The owners of estates have provided 63 estate hospitals and 649 estate dispensaries. The general rebuilding scheme in contemplation for the improvement of the Ceylon Medical College has remained deferred. The full course of training is five years for the medical students and two years for the apothecary students. A diploma in medicine, surgery, and midwifery (which can be registered in the United Kingdom) is granted to successful medical students. The apothecary students are employed by Government after they qualify in the examination. The Government institutions in Ceylon include a bacteriological institute, a Pasteur institute, a general hospital of 687 beds, an ophthalmic hospital, a lying-in home, a hospital for women and children, an anti-tuberculosis institute fitted with an up-to-date X ray apparatus, and a hospital for infectious diseases. There are special dispensaries at Kandy and Galle for the treatment of eye diseases. The lunatic asylum contained 966 inmates on Dec. 31st, 1920. As there is very considerable overcrowding in the present building temporary accommodation for 150 inmates has been provided at Matara, and the Government is erecting an up-to-date and thoroughly equipped asylum a few miles out of Colombo with accommodation for 1000 patients and for the necessary staff and servants. The leper asylum at Hendala, six miles from Colombo, contained 485 patients at the end of the year. A smaller establishment of lepers exists at Kalmunai, in the Eastern Province, with accommodation for 30. A home for incurables, with 80 beds, is administered by Government officials and representatives of the public.

Mauritius.

At last year's census the civilian population was returned as 376,108 (194,070 males and 182,838 females), an increase as compared with 1911 of 7317. The birth-rate in 1920 was 35·1, and the death-rate 32·3 per 1000 of the estimated population. The most prevalent disease in the colony is malaria. Anti-malaria and anti-mosquito measures are being continued. A preliminary survey as to the extent of hookworm infection was made during 1920 under the auspices of the International Health Board (Rockefeller Foundation); it showed the disease to be very prevalent throughout the island. The total number of cases treated in Government hospitals was 22,872, the daily average number of inmates was 62·5; there were 1074 deaths. 65,302 patients attended the dispensaries during the year. At the Leper Asylum there were 43 patients on Dec. 31st, 1920, and 15 were admitted during the year, whilst 12 were discharged and 6 died. The climate is tropical, but owing to the high elevation of the central plateau a large part of the island enjoys a temperate and bracing climate. The rainfall is irregular and varies according to locality. In the central portion of the island an average yearly rainfall of 175 in. is recorded, whereas regions where there is the lowest rainfall receive less than 40 in.

Jamaica.

The estimated population at the close of 1920 was 862,543. During that year the birth-rate worked out at 40·8 and the death-rate at 25·3 per 1000. The principal causes of death among the inhabitants of Kingston, the capital, were: phthisis, 12·4; diarrhœa and enteritis, 10·9; heart disease, 6·8; atrophy, icterus, and scleroma of the new-born, 8·6; chronic Bright's disease, 4·6; enteric fever, 4·5; pneumonia, 4·1; dysentery, 4·1 per cent. The Rockefeller Foundation began extensive operations in connexion with the treatment of hookworm, and the United Fruit Company inaugurated a system for medical attendance on their employees. Both these organisations have materially contributed to improve general health conditions on the island. The outstanding medical feature of 1920 was an epidemic of an eruptive fever known as alastrim or Kaffir milk-pox, which broke out in Kingston and spread to other parts of the island; it is satisfactory to note that the death-rate was exceptionally low. In connexion with this epidemic, it may be noted that better protection now exists against small-pox (an ever-present menace) than ever before in Jamaica, very large numbers of the inhabitants having been vaccinated and revaccinated.

THE PREVENTION OF SEA AND AIR SICKNESS.

WE have received from Mr. Joseph Nikolaus, of Hamburg, information concerning a device designed and registered by himself for the accustoming of mankind to the motions of ship and aeroplane. This device, which consists of various separate pieces of apparatus, is described by its inventor as a "sea-sports park," combining utility with amusement; apparently the apparatus is partly on dry ground and partly floating, but it is not clear from the designer's description that its mechanism admits of degrees of "dirty weather"—that is to say, that the landlubber who has become inured to a standard choppy Channel crossing is gradually graded up to the physical equivalent of beating round the Horn. There may be those who would consider it unnecessary deliberately to train Englishmen in the acquisition of sea-legs but there is much to be said for the systematic accustoming of children to sensations which, as flying becomes more common, are likely to be experienced by a steadily increasing number of people.

In the early days of the war it was noted with distress that there was an increasing number of aeroplane crashes which

started as a so-called nose-dive, being a vertical or nearly vertical descent with rotation round a vertical axis. Although the planes appeared in perfect order, and would have responded to the skilled touch, no airman returned alive from this manœuvre to tell the tale. It soon became evident that it was the helical movement around a vertical axis that put the airman, not his machine, out of gear, and through the kindness of Dr. H. C. Bazett, then Christopher Welch lecturer on clinical physiology at Oxford, and now professor of physiology in the University of Pennsylvania, we reproduce here a graphic picture of the effect on muscular balance of motion of this kind. The reader who desires to experience the same sensation in moderate degree has only to lean forward with his forehead resting on the top of a walking-stick and then to walk round and round the stick in this position. With due persistence, the result is not merely vertigo, but a condition in which all sense of stability has gone and the sufferer is rolling on the ground reaching out wildly for any object of support. An airman in this state is incapable of exerting any control on his levers.

Vertigo is much less marked when the head is rotated, even rapidly, in the position in which it is normally carried. There seems no doubt that the difference depends on the habituation of the semicircular canals to a particular form of stimulation and not to another. Possibly this habituation can only take place in early youth, and in this case there

is something to be said, if not for Mr. Nikolaus's furious sport, at all events for the training of muscle balance in all positions of the body such as comes from an intelligent application of eurhythmics and physical exercises.

PATENT MEDICINES.

IN the report of the Commissioners of His Majesty's Customs and Excise for the year ended March 31st, 1921, just presented to Parliament, it is stated that the excise duties on patent medicines payable in Great Britain (Ireland being exempt) are as follows:—

Where the packet, box, bottle, pot, phial, or other enclosure with its contents does not exceed the price or value of 1*s.*, 3*d.*; where it exceeds 1*s.* and does not exceed 2*s.* 6*d.*, 6*d.*; where it exceeds 2*s.* 6*d.* and does not exceed 4*s.*, 1*s.*; where it exceeds 4*s.* and does not exceed 10*s.*, 2*s.*; where it exceeds 10*s.* and does not exceed 20*s.*, 4*s.*; where it exceeds 20*s.* and does not exceed 30*s.*, 6*s.*; where it exceeds 30*s.* and does not exceed 50*s.*, £1; where it exceeds 50*s.*, £2.

The following table shows the net receipts from the Medicine Stamp Duty in the years specified:—

	Net duty received.		
	England.	Scotland.	Great Britain.
1912	£324,861	£2,996	£327,857
1913	325,420	2,899	328,319
1914	357,570	2,807	360,377
1915	331,033	2,744	333,777
*1916	617,879	9,575	627,454
1917	726,894	6,049	732,943
1918	797,366	6,449	803,815
1919	1,056,435	9,259	1,065,694
1920	1,322,654	10,007	1,332,661
1921	1,359,064	10,666	1,369,730

* The rates of duty were doubled as from Oct. 20th, 1915.

The excise licence duty payable by every maker or vendor of patent medicine in Great Britain is 5*s.*, and in the year ended March 31st, 1921, the number of such licences issued was 43,388 (39,956 in England and 3432 in Scotland), and the amount of duty collected in respect of the same was £10,845.

STAMMERING—WHAT IS IT?

To the Editor of THE LANCET.

SIR,—I have read with much interest the correspondence in THE LANCET on this subject, and as one who was tormented with this terrible difficulty in speaking up to early adolescence and who overcame it, my experience may be of some value to sufferers from this heart-breaking disability.

On deciding to take up medicine as my career, it was brought home to me that I could only look forward to failure unless I got over the impediment in my speech. It was pointed out by a friend that I did not stammer while singing because deep breathing was a necessity in that exercise. I further noted that my difficulty in speaking was only with certain words. Acting on the recognition of these facts I adopted the following treatment which proved to be entirely successful: (1) Reading aloud slowly and distinctly in a room by myself; (2) the taking of a deep breath before speaking, and when a difficulty arose to desist from any effort and begin again; and (3) to look ahead for any word which experience had shown me was a stumbling-block and take a deep breath before negotiating it. These measures, coupled with a determination to succeed, enabled me to overcome my difficulty.

I do not desire to belittle the value of special training, but in my young days this could only be obtained by heavy expenditure of money and residence for a long time with the expert, and this was not practicable in my case.

I am, Sir, yours faithfully,

CHARLES W. CHAPMAN.

Harley-street, W., July 3rd, 1922.

THE MEDICAL ASPECTS OF MOTOR CYCLING.

To the Editor of THE LANCET.

SIR,—As a layman I must apologise for this intrusion into your columns, but I trust, nevertheless, that you will give me the opportunity of asking your readers for their views upon the medical aspects of motor cycling. By granting me this privilege you will be conferring a favour not only upon myself, but on the whole of the motor cycle industry of this country.

My position is simply that, as a designer of motor bicycles, I want to know what ill-effects, if any, are produced by the average motor bicycle upon its riders, in the general opinion of the medical profession. Were these ill-effects generally known it is quite probable that their recurrence could be prevented in the machines of the future by improvements in design: it seems to me highly probable that we designers are at present in ignorance as to the precise points in which alteration is desirable from the medical point of view.

For example, I want to know what the medical profession thinks about the effects of vibration and those of road shocks. Are these effects merely "uncomfortable," or are they likely to bring about pathological results? In other words, from the medical point of view, is it worth my while to produce, possibly at considerable expense, a comparatively vibrationless machine, and would such a machine be generally recommended by the profession in preference to other types? Again, and in more general terms, what can I do to make my next machine more suitable to the nervous type of rider? I am at present directing my attention to improvements in silencing, and more particularly in slow running. Am I right?

I could continue my questions further, but I should be occupying too much of your space.

I am, Sir, yours faithfully,

MOTOR CYCLE DESIGNER.

London, S.W., June 28th, 1922.

REDUCTION OF TELEPHONE CHARGES.

THE reduction in telephone charges, to which we have already called attention (THE LANCET, 1922, i., 1030) came into force on July 1st. In the accounts received by subscribers during July the installation rental for residence connexions and the charges for extra mileage, which are payable in advance, will be entered at the reduced rates. Local and trunk fees for calls made during the past quarter will be charged at the present rates. Of interest to country practitioners are the concessions being made in the terms on which new exchanges will be opened in rural areas. Where the cost of the necessary junction circuit is not excessive an exchange will be opened provided eight subscribers renting direct lines can be found; the installation rental will be £2 a quarter, both for business and residence connexions, with an extra mileage charge for any distance in excess of one mile from the new exchange. The usual fees will be charged for local and trunk calls. Where as many as 15 subscribers can be found the usual installation rental of 37*s.* 6*d.* a quarter for business connexions and 30*s.* a quarter for residence connexions will apply.

LIVERPOOL HOSPITAL FOR CHILDREN, LEASOWE.

Dr. T. Hartley Martin's report, as senior medical officer of the Liverpool Hospital for Children at Leasowe, summarises the results obtained from the treatment of cases discharged from the hospital during the 12 months ending December, 1921. Of the 188 tuberculous cases 157, or 83·5 per cent., were discharged with disease quiescent; but since 10 cases were removed by their parents before completion of treatment, 88·2 per cent. represents the positive results achieved in cases treated to completion. The tables appended to the report show the great saving in time when diagnosis has been made early and treatment instituted before complications arise. Dr. Martin comments on the decrease in number of cases of spinal disease and hip disease under treatment, and the increase in those of ambulatory type—dactylitis, adenitis, and peritonitis. Since the majority of the latter do not require daily medical supervision or skilled nursing, he hopes that accommodation may be found for them in an open-air residential school, leaving the hospital beds free for cases requiring more serious attention. The after-care statistics for the Liverpool cases discharged in 1919 and 1920 are encouraging, and lead Dr. Martin to the conclusion that it is unusual for cases of osseous disease to relapse after completion of treatment. Only in very bad economic conditions at home is the desired progress from quiescence to arrest of disease not to be found. There is need for more accommodation in the hospital for children under 3 years. Dr. Martin states that there are many such awaiting admission, and it should be obvious that treatment at this age is likely to give the best economic results.

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